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IDENTIFIERS	*Power Plants

ABSTRACT

This is the first of a set of booklets that have been prepared as convenient guidebooks to those major places of interest throughout the United States, that are related to its energy technology achievements. These include historical sites, power production plants, research facilities, and museums. Maps, illustrations, and commentary provide a nationwide energy tour. In this way the traveler may view the past and also be exposed to present energy technology and the energy resource development concepts of the future. This booklet includes sites from Vermont, Massachusetts, New York, New Jersey, Pennsylvania, Maryland, and the District of Columbia. A map key shows the 23 sites described. For each site, there is a local map, site description, and address of whom to contact for additional information. (RH)

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ERDA Bicentennial Projects

ENERGY TRAILS: A Guidebook Describing Energy Sites, Power Plants, Science Museums, and Other Interesting Places

SE

ED134417

VOLUME I

northeastern states

Vermont
Massachusetts
New York
New Jersey
Pennsylvania
Maryland
District of Columbia

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Energy Research and Development Administration

The Energy Research and Development Administration publishes a series of booklets for the general public. Please write to the following address for a title list or for information on a specific subject: ERDA-Technical Information Center, P. O. Box 62, Oak Ridge, Tennessee 37830.

Niagara Falls

6

ENERGY TRAILS: A Guidebook Describing Energy Sites, Power Plants, Science Museums, and Other Interesting Places

by Joseph A. Angelo, Jr.

northeastern states

Vermont
Massachusetts
New York
New Jersey
Pennsylvania
Maryland
District of Columbia

Energy Research and Development Administration
Office of Public Affairs
Washington, D.C. 20545
Library of Congress Catalog Number: 76-600016
1976

☞ *Every effort has been made to ensure that the information contained in this booklet concerning the content, location, and visiting hours of public information exhibits is accurate. However, due to changing economic conditions and technical requirements, some of the facilities listed may be closed at the time of your planned visit. To avoid unnecessary disappointment and needless expense, please take the time to call or write ahead! A little pre-planning will make your visits far more enjoyable and satisfying.*

foreword

The history of man is also the history of energy use. Energy in all its many forms is critical to man's survival. In the past cheap and plentiful amounts of energy have been the keys to remarkable economic, technical, and social progress. In the latter portion of the 20th century, energy, particularly in the versatile form of electricity, represents an extremely vital life-giving force not only to industrialized societies, but also to lesser developed nations. Satisfying man's almost insatiable thirst for energy is the major task that lies before some of the most prominent leaders and scientists in the world today.

Highly technical societies must maintain and expand their energy production capabilities to preserve, if not improve, the contemporary level of living. Developing nations require an even greater quantum jump in energy production capability: first to achieve a standard of living comparable to that enjoyed by the more highly industrialized nations, and second to compensate for industrial expansion and population growth. In the end the great global search for more abundant sources of energy is ultimately linked to the survival of man, himself, as a technical, mobile, productive, and communicative creature.

In the past, American scientists and engineers have been instrumental in the discovery and development of major energy resources, such as natural gas, petroleum, hydroelectricity, and nuclear energy. On July 4, 1976, the United States celebrated its 200th birthday. This Bicentennial occurs at a time when this country, along with all the other nations of the world community, is engaged in a critical new revolution—"The Energy Revolution".

This is the first of a set of booklets that have been prepared as convenient guidebooks to those major places of interest throughout the continental United States, which are related to its energy technology achievements. These include historical sites, power production plants, research facilities, and museums. Maps, illustrations, and commentary provide a nationwide energy tour. In this way the traveler may view the past and also be exposed to present energy technology and the energy resource development concepts of the future.

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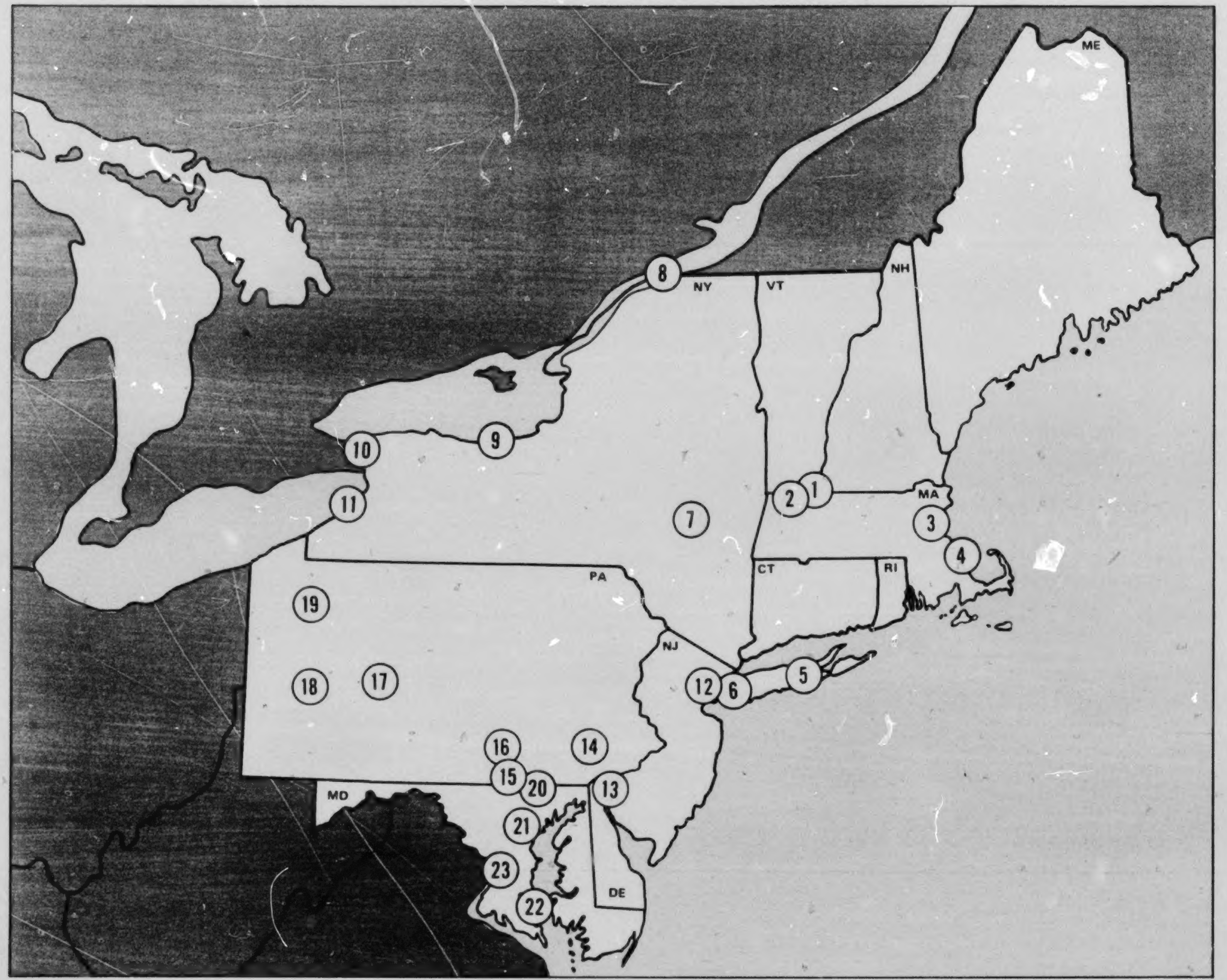
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map key

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   Rowe, Massachusetts
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4. Pilgrim Station Nuclear Power Plant
   Plymouth, Massachusetts
5. Brookhaven National Laboratory
   Upton, New York
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7. Blenheim-Gilboa Pumped Storage Power Project
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21. Peale Museum
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22. Calvert Cliffs Nuclear Power Plant
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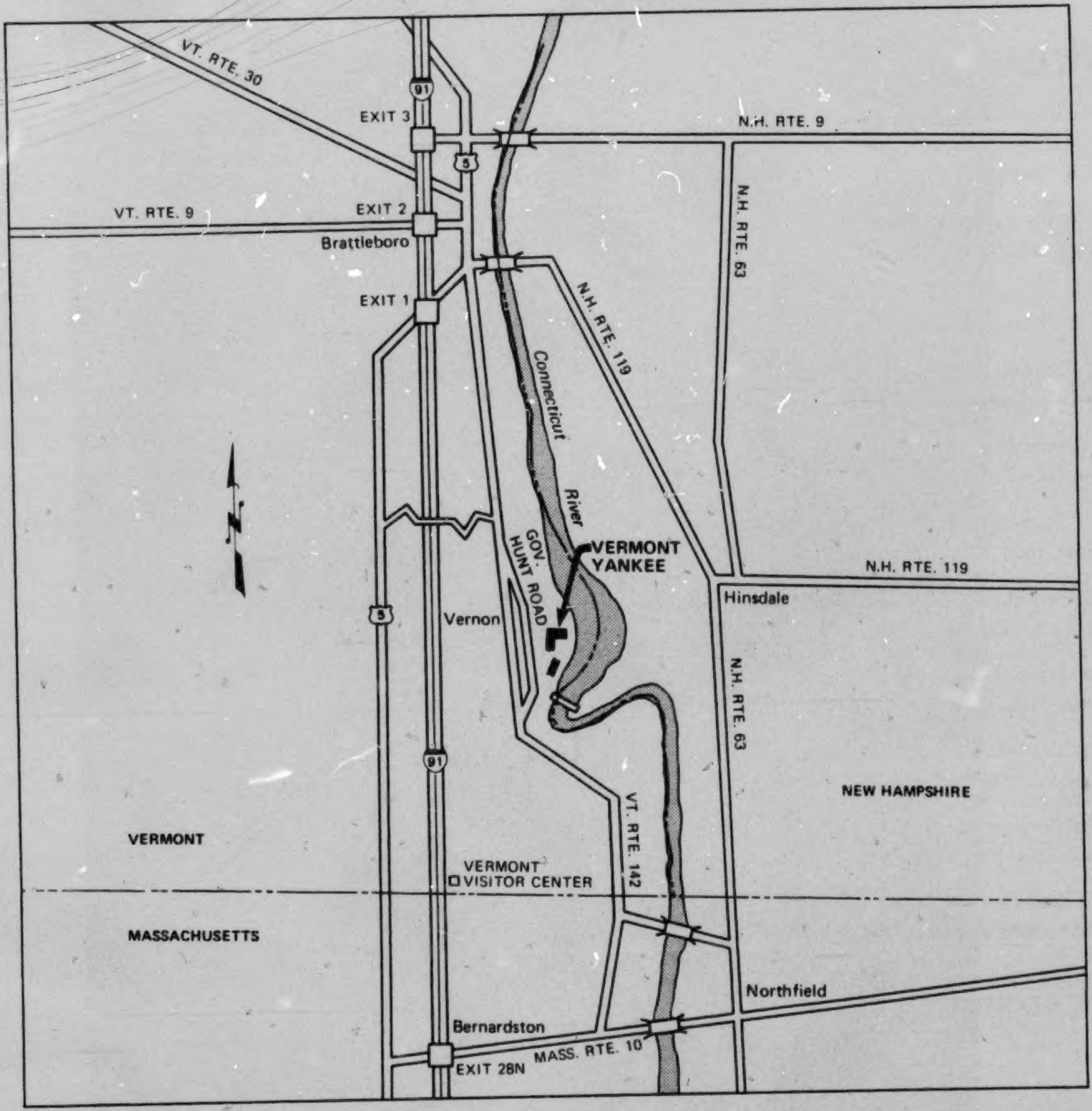
23. National Museum of History and Technology
    Washington, D. C.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Northfield
Bernardston
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Vermont Yankee Generating Station
Vernon, VT

Visiting Hours: The visitor information center is open daily from 9:00 a.m. to 4:30 p.m.

The Vermont Yankee Generating Station is Vermont's first nuclear power plant. It is located on the west shore of the historic Connecticut River about halfway between Brattleboro and the Massachusetts-Vermont border.

The center of the Vermont Yankee Plant is a direct-cycle, boiling-water nuclear reactor, fueled with slightly enriched uranium dioxide (UO_2) pellets. The plant has a net electric capacity of about 514,000 kilowatts and began commercial operation in 1972. Since then Vermont Yankee has been providing New England with up to 12 million kilowatt hours per day.

The plant site in the tranquil Connecticut River Valley was once a part of the often violent New England frontier. For example, a few miles north of Vermont Yankee is the site of Fort Dummer, now underwater, but once Vermont's first English settlement. The construction of Fort Dummer in

1724 was followed by the construction of two blockhouse forts, Fort Bridgeman and Fort Startwell, in 1737 in Vernon. During Indian raids in 1746 and 1747 both forts were destroyed. Adjacent to the Vermont Yankee Visitor Center itself is the Jonathan Hunt Mansion, which was constructed in the late 1700s. Hunt was an early Vermont settler and also the Lieutenant Governor of Vermont shortly after the state's admission to the Union in 1791.

For additional information, please contact:

Vermont Yankee Nuclear Power Plant
P. O. Box 157
Vernon, Vermont 05354

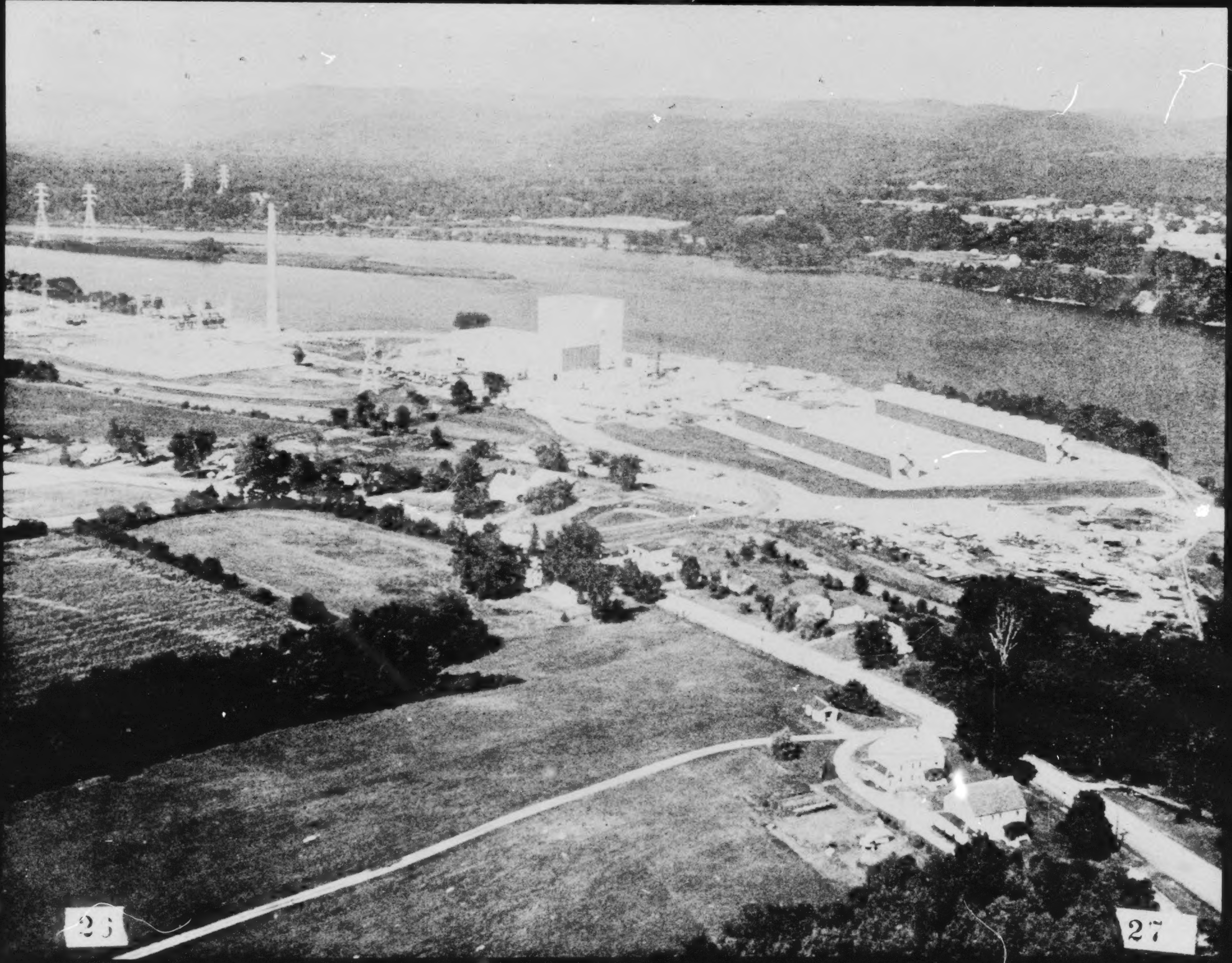
Phone: (802) 257-7711

or

Vermont Yankee Nuclear Power Corporation
77 Grove Street
Rutland, Vermont 05701

Phone: (802) 773-2711

The Vermont Yankee Generating Station.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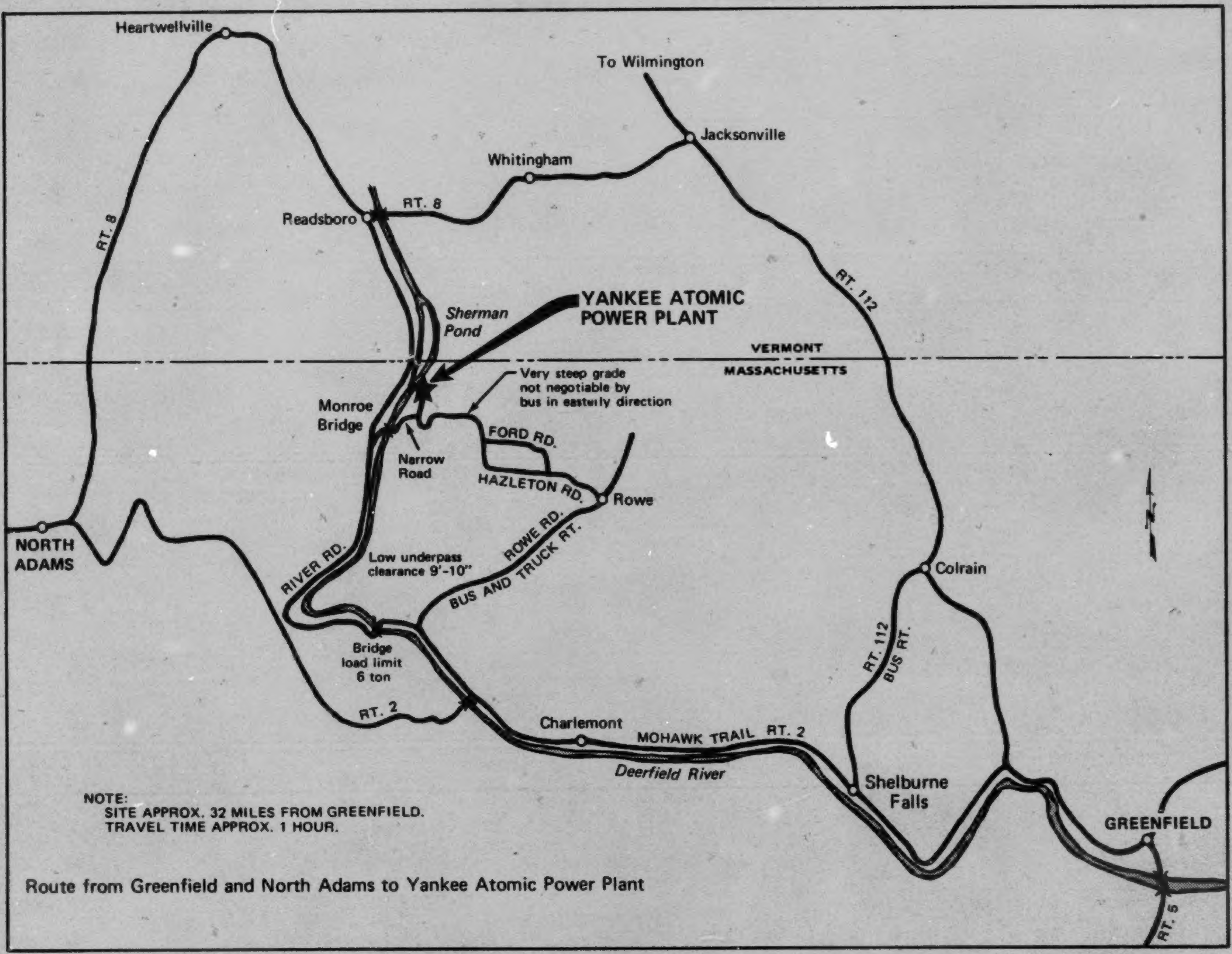

Heartwellville
To Wilmington
Jacksonville
Whitingham
RT. 8
Readsboro
RT. 8
RT. 112
Sherman Pond
YANKEE ATOMIC POWER PLANT
VERMONT
MASSACHUSETTS
Very steep grade not negotiable by bus in easterly direction
Monroe Bridge
Narrow Road
FORD RD.
HAZLETON RD.
Rowe
ROWE RD.
BUS AND TRUCK RT.
NORTH ADAMS
RIVER RD.
Low underpass clearance 9'-10"
Colrain
Bridge load limit 6 ton
RT. 112
BUS RT.
RT. 2
Charlemont
MOHAWK TRAIL RT. 2
Deerfield River
Shelburne Falls
GREENFIELD
RT. 5
N

NOTE:
SITE APPROX. 32 MILES FROM GREENFIELD.
TRAVEL TIME APPROX. 1 HOUR.

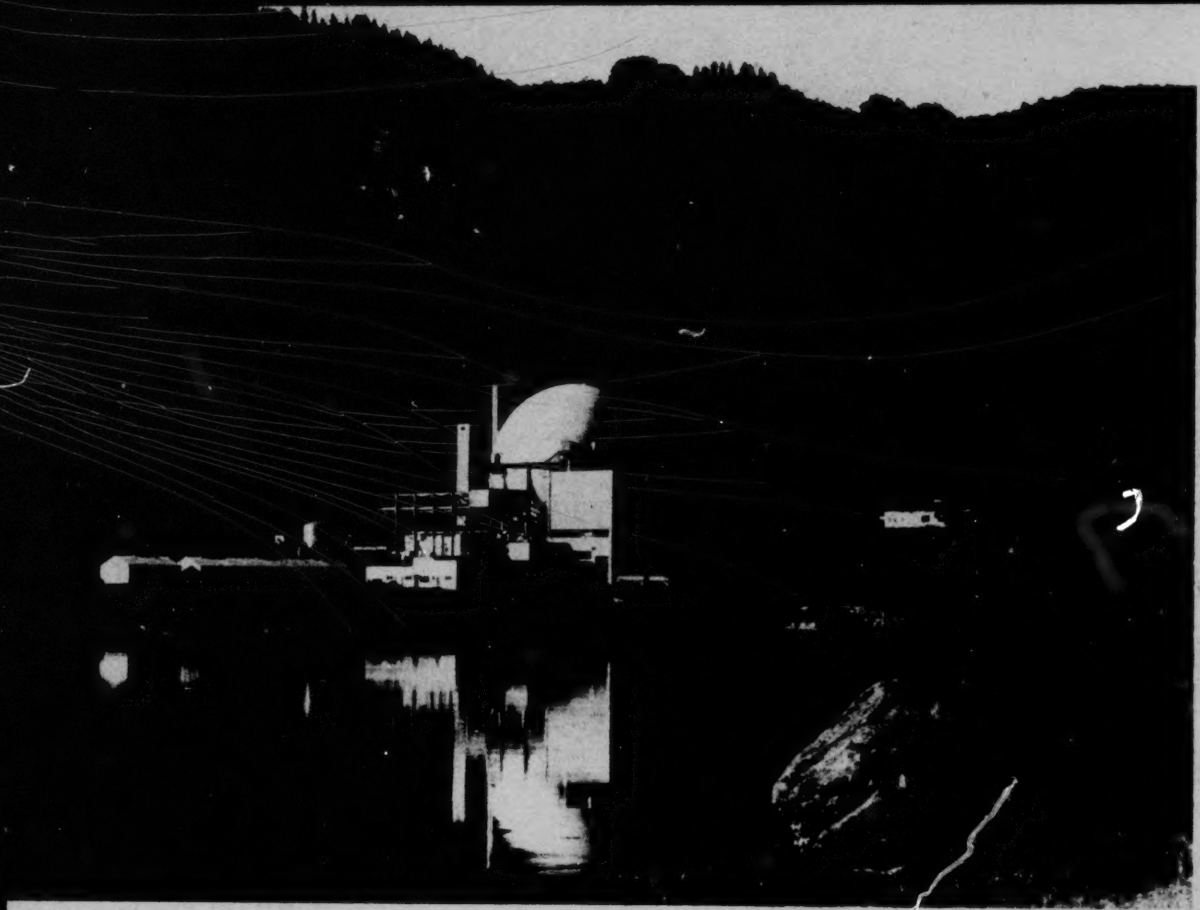
Route from Greenfield and North Adams to Yankee Atomic Power Plant

Yankee Nuclear Power Station
Rowe, MA

Facilities: The information center provides visitors with exhibits, lectures, movies, slides, discussions, plant models, and a full-size fuel assembly.

The Yankee Nuclear Power Station makes its home amid the woodland beauty near the little town of Rowe in the northwest corner of Massachusetts. The 2000-acre plant site is surrounded by rolling hills and flanked by the meandering path of the Deerfield River. Construction of the plant began in 1958 and 3 years later it was completed and producing commercial power. It has a pressurized-water reactor and a net electric capacity of about 175,000 kilowatts. After more than a decade of successful power generation, Yankee has made a significant contribution to New England's electric power needs, but perhaps even more importantly it has demonstrated the reliability and practicality of this new energy source.

Yankee is indeed a pioneering energy science endeavor. In 1954 President Eisenhower signed the amended Atomic



The Yankee Nuclear Power Station.

Energy Act, which permitted, for the first time, private company ownership of atomic facilities. The following day a group of New England utilities representatives met and agreed to form a company whose purpose was to build and operate a full-size nuclear power plant for the generation of electricity. A pressurized-water reactor design, which was selected by this group, was similar in principle to the

Shippingport reactor then being constructed near Pittsburgh, Pennsylvania, and to submarine reactors. The plant was built in Rowe because of the availability of cooling water from the Deerfield River, existing electric power transmission facilities, adequate land that could be purchased at a reasonable price, railroad transportation, and a favorable public attitude.

The Yankee Atomic Electric Company was formed and incorporated as a Massachusetts electric company. This plant was the first full-size privately financed atomic power plant to generate electricity in New England and the second in the Nation. The sponsoring companies were Central Vermont Public Service Corporation, Public Service Company of New Hampshire, Central Maine Power Company, New England Electric System, Boston Edison Company, New England Gas and Electric Association, Eastern Utilities Association, Hartford Electric Light Company, Connecticut Light and Power Company, and Western Massachusetts Electric Company.

For current operating hours of the information center and to arrange for special tours or group visits, please contact:

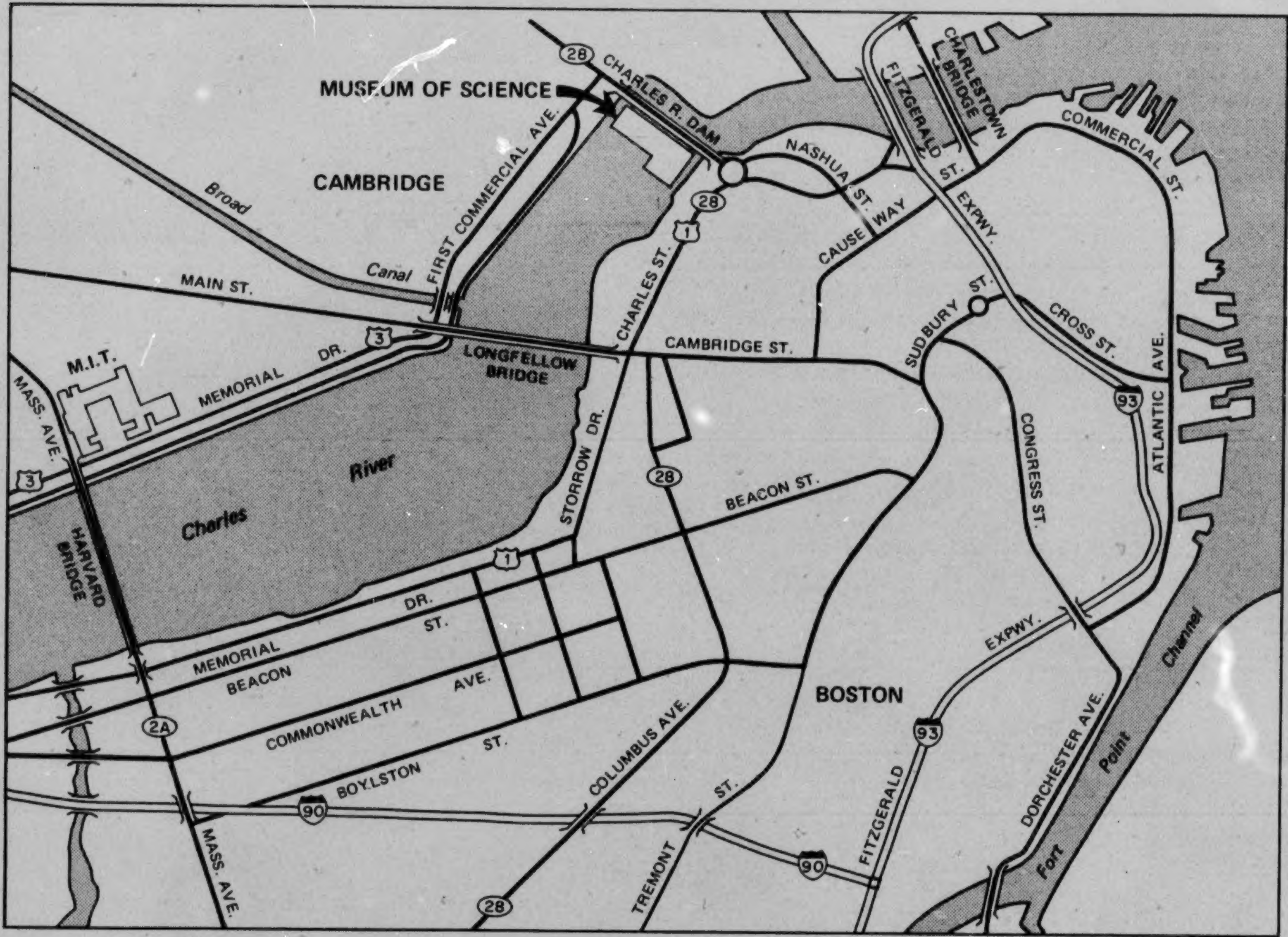
Public Information Representative
Yankee Atomic Electric Company
Rowe, Massachusetts 01367

Phone: (413) 625-6393

or

Nuclear Information Coordinator
The Narragansett Electric Company
New England Electric Systems
P. O. Box 1438
Providence, Rhode Island 02901

Phone: (401) 781-0100


MUSEUM OF SCIENCE
CHARLES R. DAM
28
CHARLESTOWN BRIDGE
FITZGERALD ST.
COMMERCIAL ST.
NASHUA ST.
CAMBRIDGE
Broad Canal
FIRST COMMERCIAL AVE.
28
1
CAUSE WAY
EXPWY.
MAIN ST.
CHARLES ST.
SUDBURY ST.
CROSS ST.
3
CAMBRIDGE ST.
LONGFELLOW BRIDGE
MEMORIAL DR.
M.I.T.
MASS. AVE.
93
ATLANTIC AVE.
CONGRESS ST.
STORROW DR.
River
28
BEACON ST.
3
Charles
HARVARD BRIDGE
1
MEMORIAL DR.
BEACON ST.
COMMONWEALTH AVE.
EXPWY.
BOSTON
2A
BOYLSTON ST.
COLUMBUS AVE.
93
FITZGERALD
DORCHESTER AVE.
Fort Point Channel
90
TREMONT ST.
90
MASS. AVE.
28

Museum of Science
Boston, MA

Admission Fee: $2.50 for adults; $1.50 for children (5-16 years old), college students, senior citizens, and servicemen.

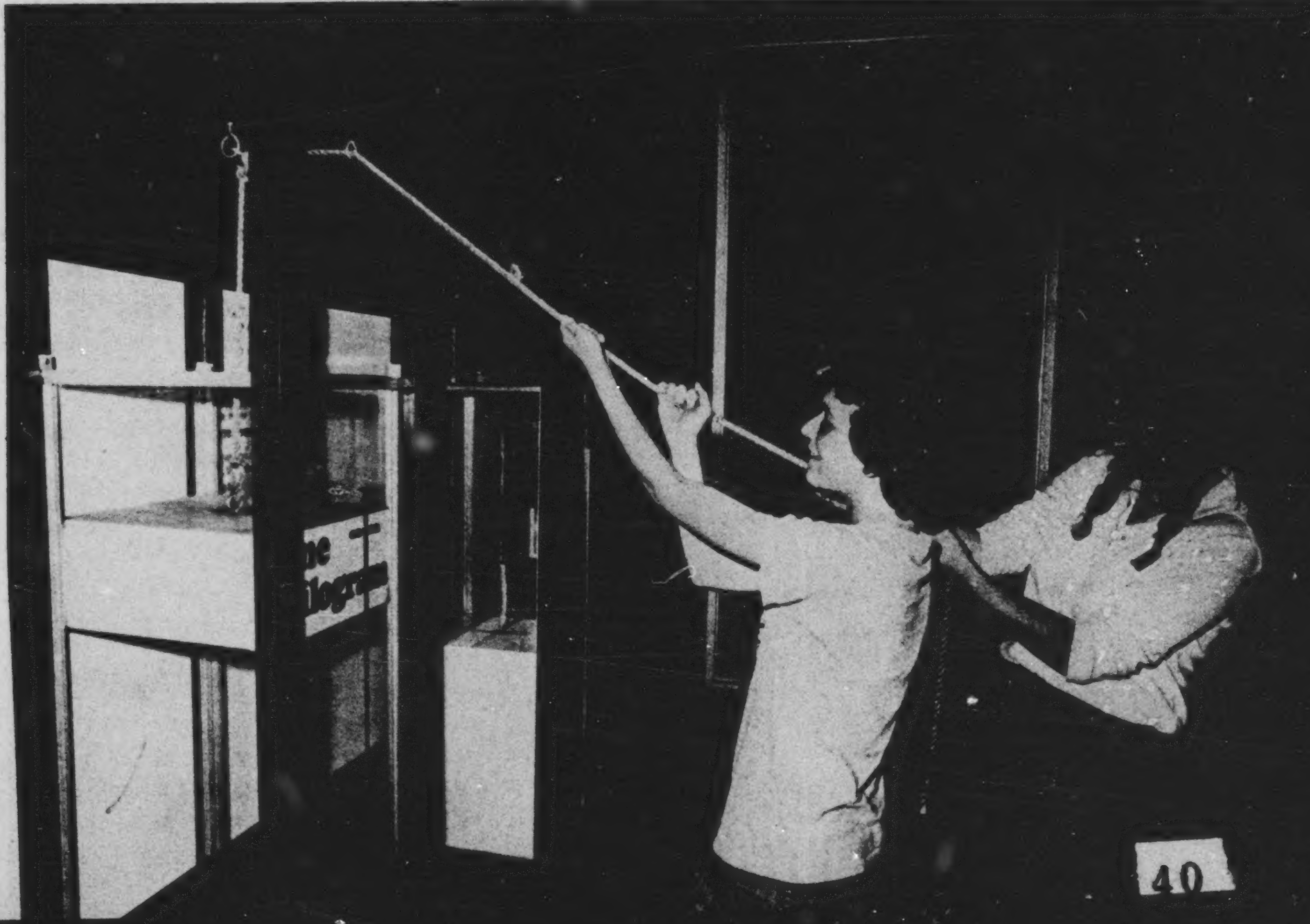
Visiting Hours: The museum is open Monday through Saturday from 10:00 a.m. to 5:00 p.m., and on Sunday from 11:00 a.m. to 5:00 p.m. It is closed on Thanksgiving, Christmas Day, and New Year's Day.

The Museum of Science is located on the Charles River in central Boston within walking distance of North Station and MBTA Science Park Station (Lechmere Green Line from Park Street).

Among the many fine exhibits are several relating to energy, including an operating steam engine and exhibits on natural gas, electricity, and electrolysis.

A good physical workout awaits visitors to the natural gas exhibit where they can pull weights, move handles, and push buttons as they tour the multi-unit display area and learn about natural gas as an energy source. This exhibit, sponsored by the New England Gas Association, uses models, murals, diagrams, and several viewer-operated devices to tell the story

Museum visitors lift a 1-kilogram weight to see how much energy is required.



of natural gas from its discovery in the earth to its many applications including the generation of light and the creation of heat.

There is also a comprehensive exhibit dealing with electric energy and power generating processes. The exhibit, sponsored by six electric power companies of New England, explains, with graphics, models, and animated displays, such topics as the structure of the atom, the difference between nuclear fission and nuclear fusion, and the effect of population growth or weather conditions on the electric power supply. Visitors are invited to experiment with six different ways of generating electricity and to play an electronic game that tests their skill at meeting electricity demands without causing a blackout. A model of a nuclear reactor, an operating electric meter, and a full-size fuel bundle for a nuclear power plant are included among the exhibits.

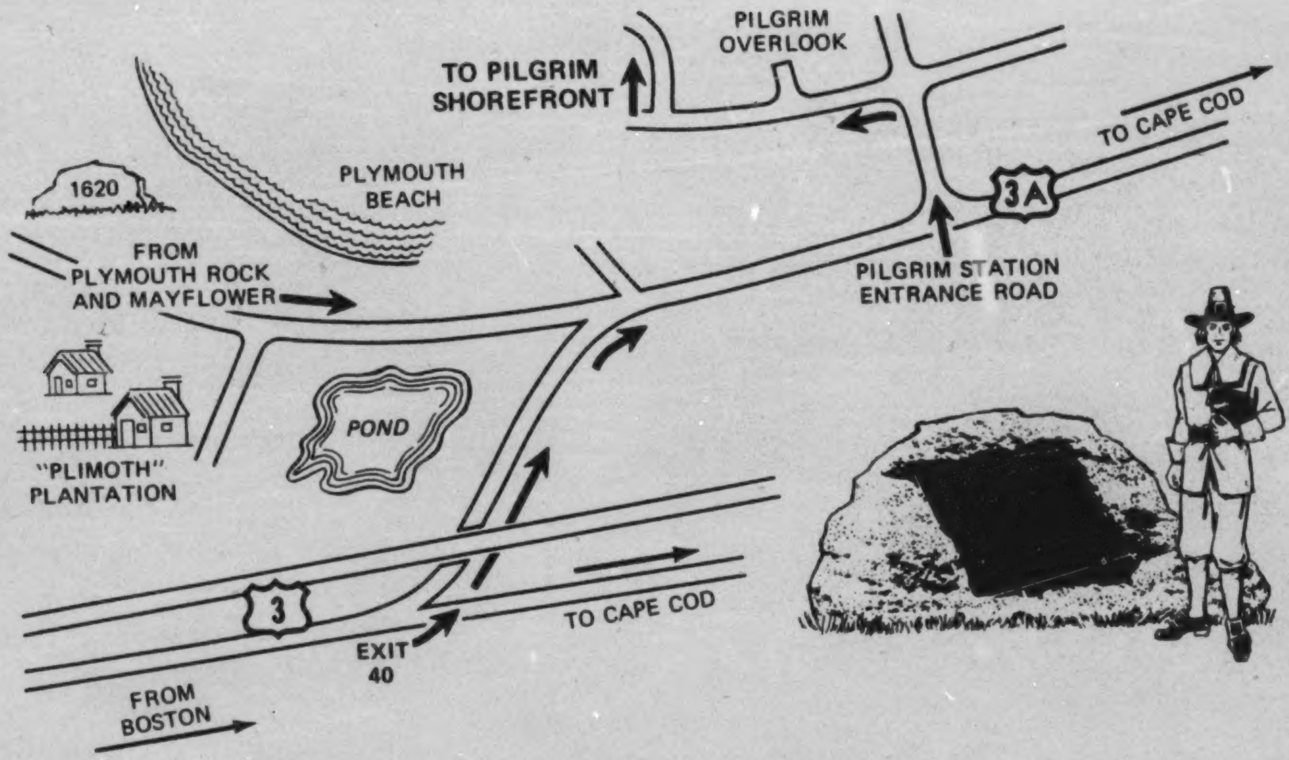
The visitor can also examine an exhibit on the chemical process of electrolysis. Electrolysis is a relatively simple process in which water is broken down into hydrogen and oxygen molecules. This is accomplished through the transfer of electrical energy into chemical energy. Energy can thus be stored in the hydrogen and oxygen and released when it is needed later by recombining the two gases. Then, a specially designed fuel cell can be used to convert the chemical energy directly into electricity; or the two gases can be recombined by combustion to produce heat and pressure. The process represents a nonpolluting source of power, whose only by-product is water. When museum visitors activate the electrolysis process in the exhibit, bubbles of hydrogen and oxygen rise through glass tubes, and lighted numbers signify the countdown to the spark that ignites the molecules and causes the recombination of the gases. As this process occurs, visitors can hear the "pop" sound and see the faint light given off when the energy is released. Today, scientists, who are studying possible solutions to our energy problems, are in fact examining the electrolysis process as a workable means of providing a clean abundant source of power. One of these ideas is the use of solar energy or wind power to electrolyze ocean water and then to pipe the resulting hydrogen and oxygen gas to shore to be used in electric power generation at inland plants.

Finally, there is an operating steam engine, which once generated electricity at the Prescott Lumber Company in New Hampshire. At the lumber mill the steam came from a separate wood-burning boiler. Now the steam comes from the same source that supplies steam heat to the museum. Only a steam engine running on live steam can produce for the visitor the authentic sounds and smells of this dynamic exhibit.

For additional information, please contact:

Public Relations Department
Museum of Science
Science Park
Boston, Massachusetts 02114

Phone: (617) 723-2500


PILGRIM
OVERLOOK
TO PILGRIM
SHOREFRONT
TO CAPE COD
3A
PLYMOUTH
BEACH
1620
FROM
PLYMOUTH ROCK
AND MAYFLOWER
PILGRIM STATION
ENTRANCE ROAD
"PLIMOTH"
PLANTATION
POND
3
TO CAPE COD
EXIT
40
FROM
BOSTON

Pilgrim Station Nuclear Power Plant
Plymouth, MA

Massachusetts

Facilities: The visitor site, called "Shorefront", provides an excellent view of Cape Cod Bay and a sport fishing area along its 1800-foot power plant breakwater.

The Pilgrim Station Nuclear Power Plant, which uses a boiling-water reactor, has a net electrical capacity of 664,000 kilowatts and began operation in 1972. The plant and recreation area are a 1-hour drive from Boston and are close to other historical points of interest such as "Plimoth" Plantation and Plymouth Rock.

For additional information, please contact:

Public Information Officer
Pilgrim Station
Boston Edison Company
800 Boylston Street
Boston, Massachusetts 02199

Phone: (617) 746-0912

The Pilgrim Station Nuclear Power Plant.

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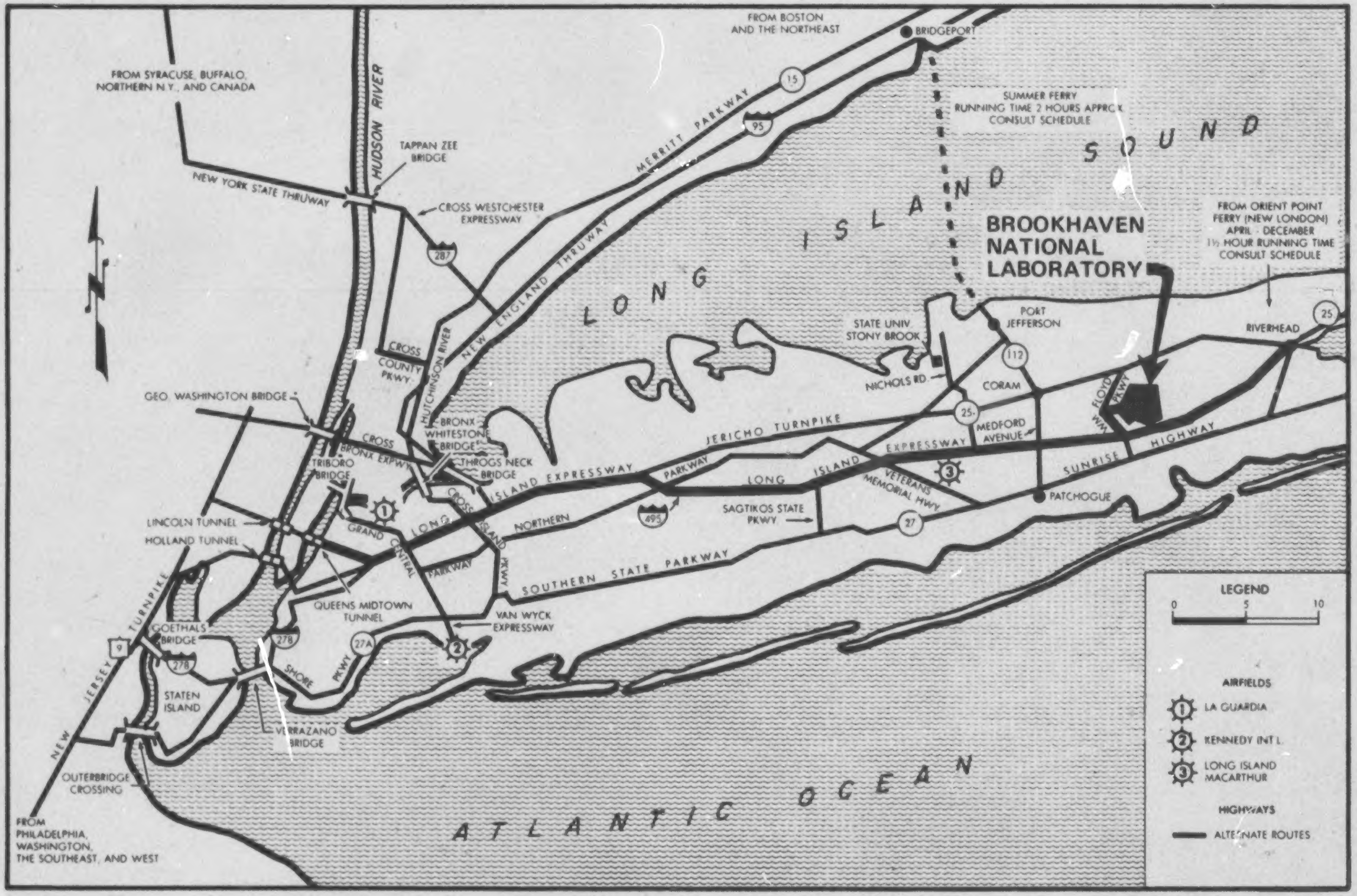

FROM BOSTON AND THE NORTHEAST
BRIDGEPORT
FROM SYRACUSE, BUFFALO, NORTHERN N.Y., AND CANADA
HUDSON RIVER
TAPPAN ZEE BRIDGE
NEW YORK STATE THRUWAY
CROSS WESTCHESTER EXPRESSWAY
287
MERRITT PARKWAY
15
95
SUMMER FERRY RUNNING TIME 2 HOURS APPROX CONSULT SCHEDULE
LONG ISLAND SOUND
NEW ENGLAND THRUWAY
HUTCHINSON RIVER
CROSS COUNTY PKWY.
BROOKHAVEN NATIONAL LABORATORY
FROM ORIENT POINT FERRY (NEW LONDON) APRIL - DECEMBER 1½ HOUR RUNNING TIME CONSULT SCHEDULE
PORT JEFFERSON
STATE UNIV. STONY BROOK
NICHOLS RD.
112
CORAM
RIVERHEAD
25
25A
MEDFORD AVENUE
WM. FLOYD PKWY
GEO. WASHINGTON BRIDGE
CROSS BRONX EXPWY
BRONX WHITESTONE BRIDGE
THROGS NECK BRIDGE
TRIBORO BRIDGE
JERICHO TURNPIKE
LONG ISLAND EXPRESSWAY
SUNRISE HIGHWAY
PATCHOGUE
VETERANS MEMORIAL HWY
CROSS ISLAND PKWY
NORTHERN PARKWAY
495
SAGTIKOS STATE PKWY.
27
LINCOLN TUNNEL
HOLLAND TUNNEL
GRAND CENTRAL PARKWAY
QUEENS MIDTOWN TUNNEL
SOUTHERN STATE PARKWAY
VAN WYCK EXPRESSWAY
NEW JERSEY TURNPIKE
9
GOETHALS BRIDGE
278
27A
SHORE PKWY
STATEN ISLAND
VERRAZANO BRIDGE
OUTERBRIDGE CROSSING
FROM PHILADELPHIA, WASHINGTON, THE SOUTHEAST, AND WEST
ATLANTIC OCEAN
N
LEGEND
0 5 10
AIRFIELDS
1 LA GUARDIA
2 KENNEDY INT'L
3 LONG ISLAND MACARTHUR
HIGHWAYS
ALTERNATE ROUTES

Brookhaven National Laboratory
Upton, NY

Visiting Hours: Open House for students and the general public is held on a weekend in May, and in 1976 this will be extended to Saturdays during the summer months of the Bicentennial year. Tours are conducted through several of the major research facilities, and a variety of special exhibits, demonstrations, and lectures is offered. In addition, special tours are arranged throughout the year for qualified professional and collegiate groups.

Brookhaven National Laboratory, an integral part of this Nation's energy research facilities, is a national center for fundamental and applied research in energy related sciences. The laboratory is operated by Associated Universities, Inc., for the Energy Research and Development Administration. Brookhaven National Laboratory is located in central Suffolk County on eastern Long Island, about midway between the Atlantic Ocean and Long Island Sound. It is about 70 miles east of New York City.

Aerial view of the main Brookhaven National Laboratory complex.

Brookhaven's research covers a wide spectrum in the physical, life, and applied sciences. Four general headings summarize these efforts: (1) structure and properties of matter; (2) physical, chemical, and biological effects of radiation and atmospheric pollutants; (3) radioisotopes and other nuclear tools, especially in medicine; and (4) research and development in energy use, conservation, and technology. Modern research facilities include the 33-billion-electron-volt alternating gradient synchrotron, a 200-million-electron-volt linear accelerator (which is also used to produce large quantities of medical isotopes), a tandem Van de Graaff accelerator, a high flux beam research reactor, a large array of modern computers, and an advanced electron microscope facility.

Extensive studies are under way to provide policymakers with an energy reference system that describes the manifold ways in which energy is produced, distributed, and used, and what effects may be expected in changing resources and patterns of consumption.

During World War I, the site of Brookhaven National Laboratory was the War Department's Camp Upton, where Irving Berlin first introduced the song "Oh! How I Hate to Get Up in the Morning". After the First World War, the camp lay idle until occupied by a group of Civilian Conservation Corps (CCC) men during the Depression. In the Second World War, it was used as a basic training camp and also as a prisoner-of-war camp. When the last soldier left the site, the camp was closed down and its military history came to an end.

On March 22, 1947, Associated Universities, Inc. began to manage the site as Brookhaven National Laboratory for the United States Atomic Energy Commission (now the Energy Research and Development Administration). In the intervening years, the resident staff has been supplemented by thousands of eminent scientists and hundreds of students who have come to use the extensive facilities, many of which are too complex or costly for any one university to maintain.

For further information about the Brookhaven National Laboratory, please contact:

Public Relations Office
Brookhaven National Laboratory
Upton, New York 11973

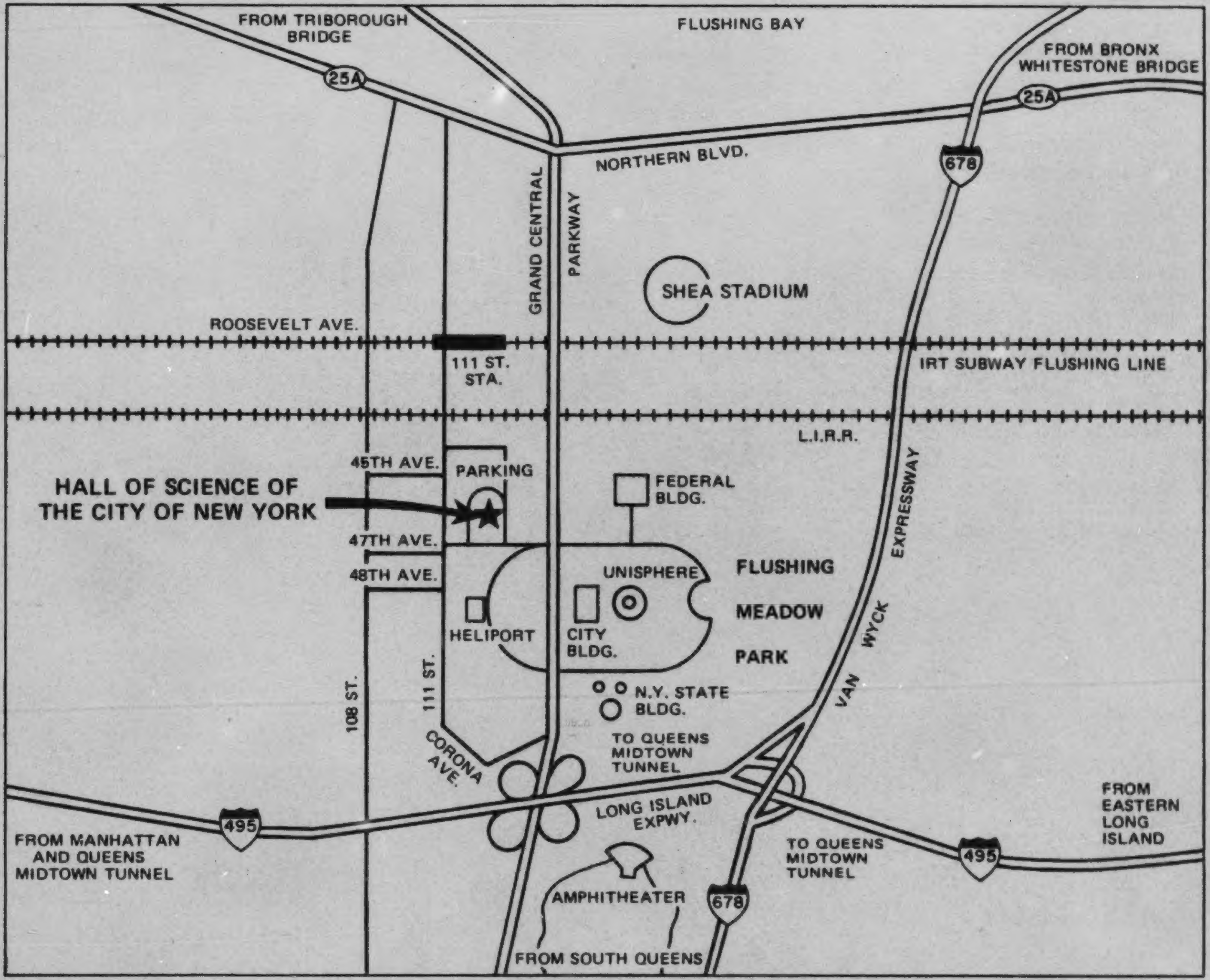
Phone: (516) 345-2345

For additional information concerning the Open House and guided tours for special interest groups, please contact:

Visitor Services Office
Brookhaven National Laboratory
Upton, New York 11973

Phone: (515) 345-3364

The sun sets behind the High-Flux Beam Reactor building.

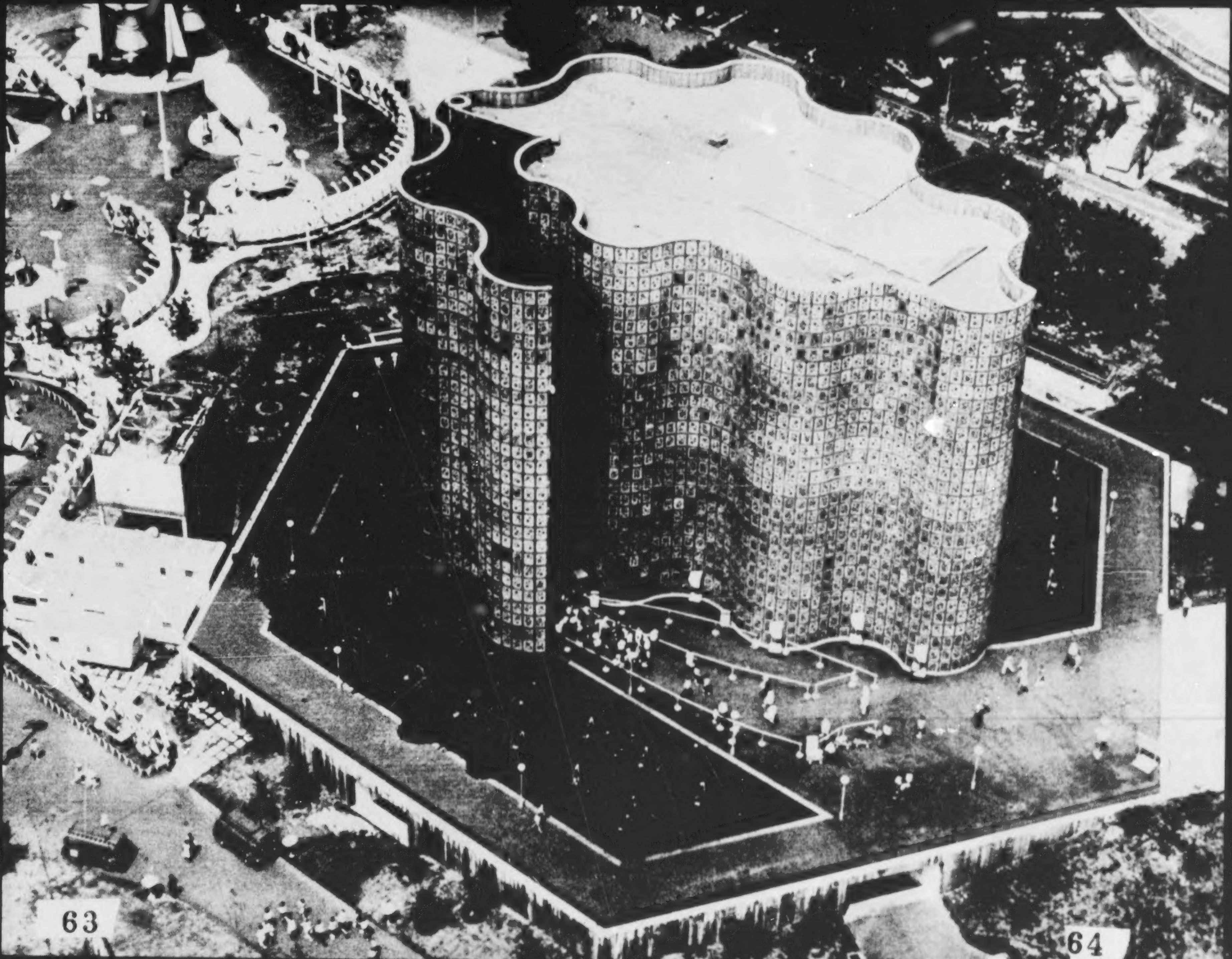

FROM TRIBOROUGH BRIDGE
25A
FLUSHING BAY
FROM BRONX WHITESTONE BRIDGE
25A
NORTHERN BLVD.
678
GRAND CENTRAL
PARKWAY
SHEA STADIUM
ROOSEVELT AVE.
111 ST. STA.
IRT SUBWAY FLUSHING LINE
L.I.R.R.
45TH AVE.
PARKING
HALL OF SCIENCE OF THE CITY OF NEW YORK
FEDERAL BLDG.
47TH AVE.
48TH AVE.
UNISPHERE
FLUSHING
MEADOW
PARK
HELIPORT
CITY BLDG.
VAN WYCK EXPRESSWAY
108 ST.
111 ST.
N.Y. STATE BLDG.
CORONA AVE.
TO QUEENS MIDTOWN TUNNEL
LONG ISLAND EXPWY.
FROM EASTERN LONG ISLAND
495
FROM MANHATTAN AND QUEENS MIDTOWN TUNNEL
TO QUEENS MIDTOWN TUNNEL
495
AMPHITHEATER
678
FROM SOUTH QUEENS

Hall of Science of the City of New York
Flushing, NY

Visiting Hours: The museum is open Tuesday through Friday from 10:00 a.m. to 4:00 p.m., Saturday from 10:00 a.m. to 5:00 p.m., and Sundays from 1:00 p.m. to 5:00 p.m. It is closed on Monday, Thanksgiving, Christmas, and New Year's Day.

Admission Fee: Admission is free, except for the Planetarium (25¢) and the "Rendezvous in Space" show (25¢).

The Hall of Science of the City of New York is located on 21 acres in Flushing Meadows–Corona Park, Flushing, New York. By subway, take the IRT Flushing Line to the 111th Street Station. The Hall of Science is five blocks south of the station. By car, take the Grand Central Parkway, Van Wyck Expressway, or Long Island Expressway, and use 108th Street Exit as shown on the map. There is ample free parking. By bus, take the B-58 Maspeth-Flushing Route to 108th Street and 48th Avenue. Walk one block south.



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The present facilities are intended as the nucleus of an institution devoted to the presentation of scientific and technological knowledge to people of all ages. Included among the permanent indoor exhibits are: "Nuclear Adventure: Nuclear Power for New York City", "The Electricity Exhibit", and "The Story of Portable Electrical Power".

The Nuclear Adventure presentation is sponsored by the Consolidated Edison Company of New York. It depicts the use of nuclear energy to provide New York City with all its power needs. The visitor sees New York as it was in 1660 and how power sources and needs have changed since then. A model of a nuclear power plant demonstrates how electricity is produced from the atom. Please note that this exhibit has a limited capacity, and, therefore, reservations must be made by groups after they arrive at the Hall of Science.

In the Electricity Exhibit visitors may operate many devices associated with the technology of electricity. Some of these exhibits involve magnetism, computer magnetic core memories, a high-voltage spark gap (Zapper), and a Van de Graaff electrostatic generator.

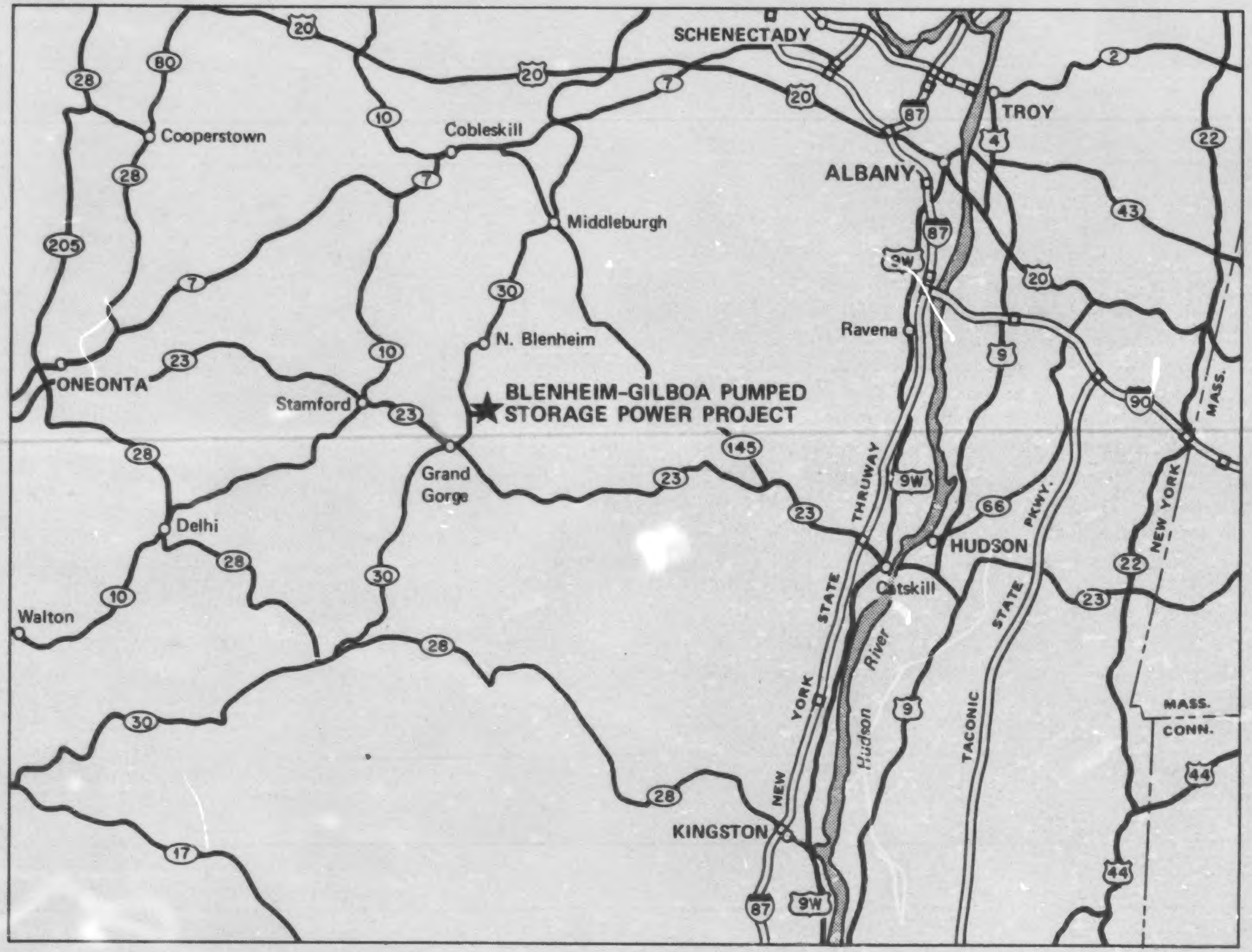
The Portable Electrical Power Exhibit shows how electricity is generated chemically and tells the story of the dry cell battery from its early beginnings to its modern form.

For additional information or help in planning group visits, please contact:

Executive Director
Hall of Science of the City of New York, Inc.
Flushing Meadows–Corona Park
P. O. Box 1032
Flushing, New York 11352

Phone: (212) 699-9400

Aerial view of the Hall of Science of the City of New York.


SCHENECTADY
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Cobleskill
Middleburgh
N. Blenheim
ONEONTA
Stamford
BLENHEIM-GILBOA PUMPED STORAGE POWER PROJECT
Grand Gorge
Delhi
Walton
Ravena
HUDSON
Catskill
KINGSTON
NEW YORK STATE THRUWAY
TACONIC STATE PKWY.
Hudson River
NEW YORK
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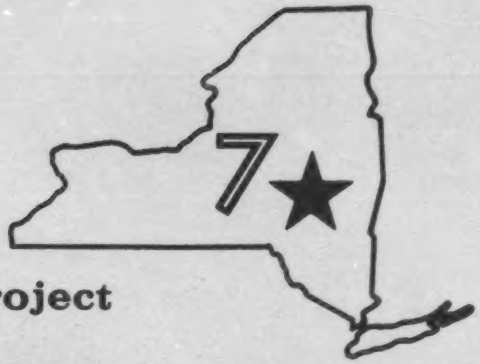
New York



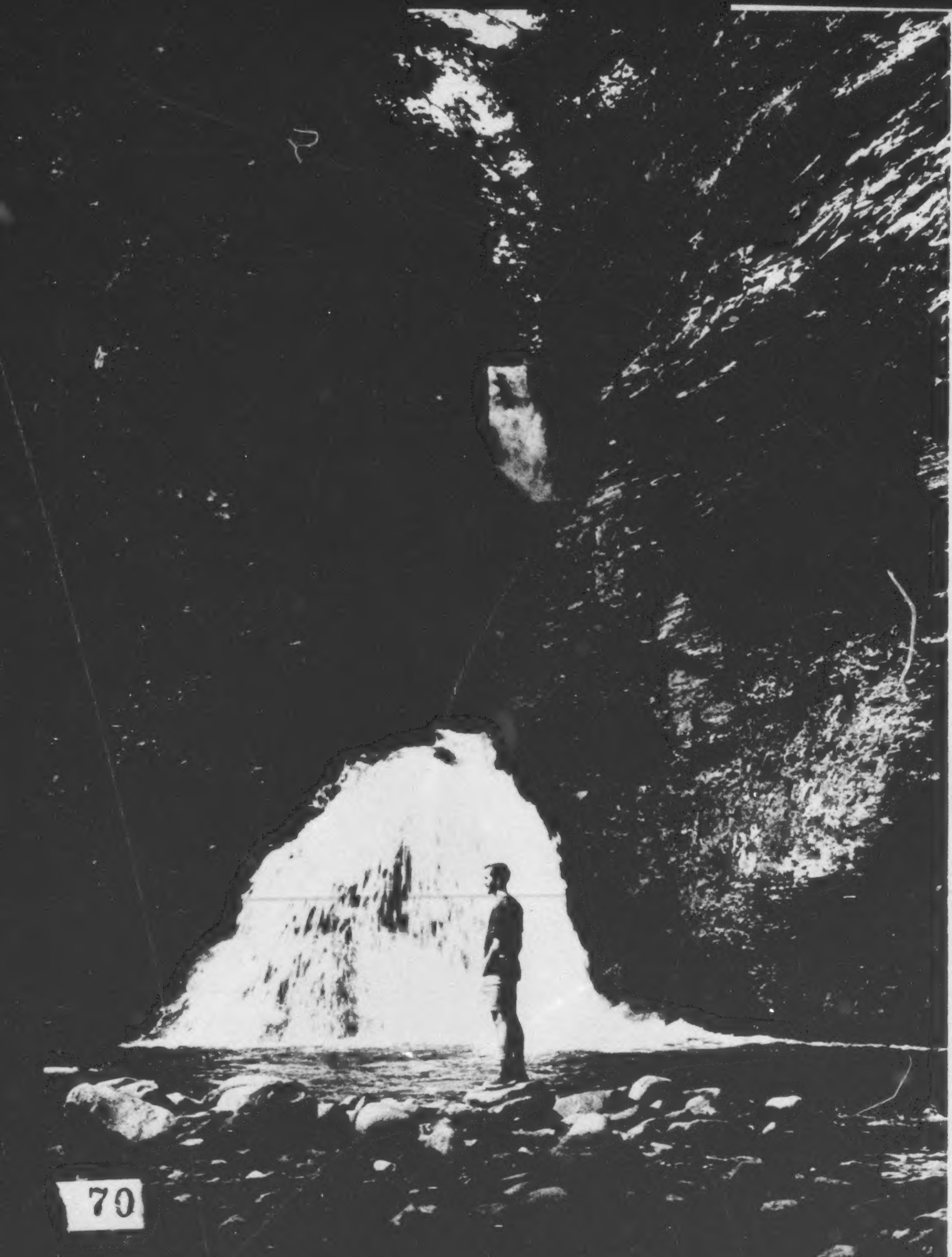
Blenheim-Gilboa Pumped Storage Power Project
North Blenheim, NY

Visiting Hours: The project is open daily from 9:00 a.m. to 5:00 p.m. from mid-June to Labor Day. It is closed on Thanksgiving and Christmas.

Facilities: The Mine Kill State Park adjoins the power project's lower reservoir and contains a three-pool swimming complex, a visitor overlook, picnic areas, hiking trails, and a boat launching ramp.

Long before white settlers entered the area, there were Indian villages near Schoharie Creek and its tributaries. The Iroquois had a village near a quiet backwater where driftwood gathered. They called the creek To-wos-scho'-hor, meaning drift or driftwood, and "Schoharie" was derived from that name.

The first European settlers emigrated here in 1711 from the Palatinate section of Germany. In 1718 the flowing waters of Schoharie Creek were tapped to provide power for

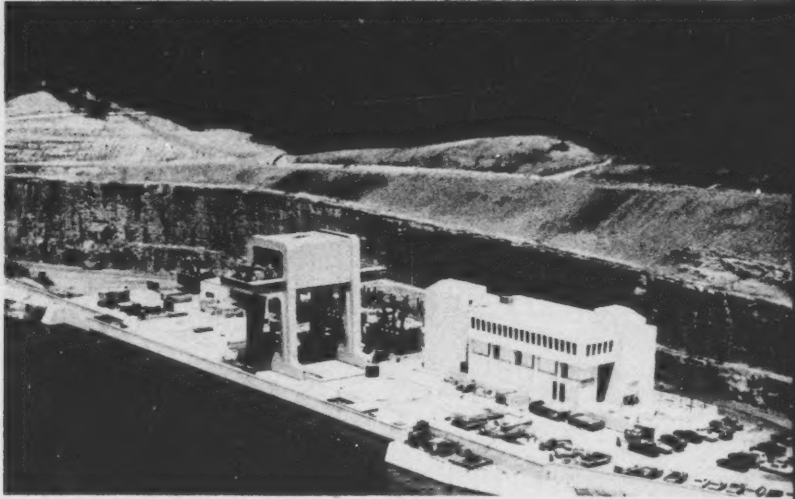


The Mine Kill Falls

a grist mill near what is now Middleburg, New York. Soon British, Dutch, and Irish pioneers settled in the area and a chain of water power plants was created along the creek. These mills were used to grind grain, cut lumber, and provide mechanical power for early manufacturing in Schoharie County. They remained in use through the centuries until 1916, when construction of the Schoharie Reservoir reduced the flow in the stream. In 1904 when the Empire State Power Company built generators, which were turned by rope belts linked to 40-foot water wheels, the creek began producing electrical power. This early 1500-kilowatt plant was also retired with the start of construction of the Schoharie Reservoir.

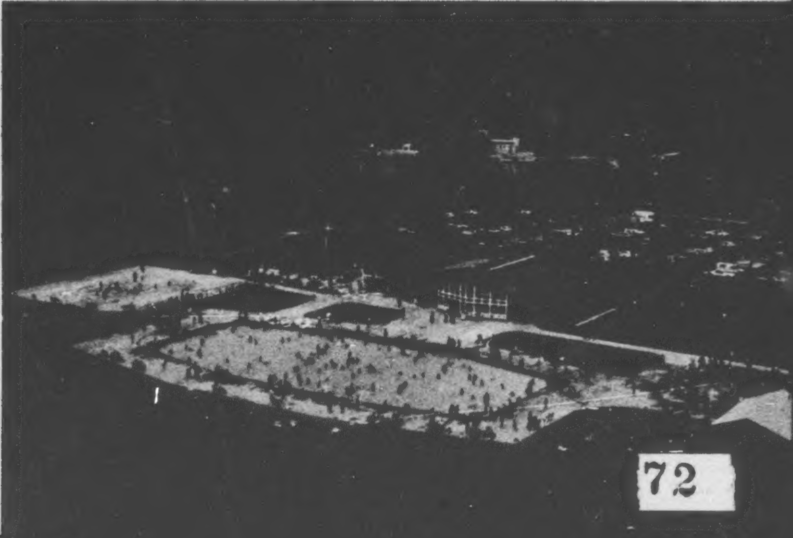
Then, in 1968, after almost a half-century absence, the Schoharie was again used for power. At that time the Legislature of New York State directed the State Power Authority to build pumped-storage power projects that would increase the dependable supply of electricity in the state. A site was selected in the towns of Blenheim and Gilboa, about 40 miles southwest of Albany and about 105 miles north-northwest of New York City.

The Blenheim-Gilboa Project operates like a giant storage battery and helps provide electricity at times when it is most needed. Two reservoirs, one situated 1000 feet above the powerhouse and the other just below it, are used in the project. At times of peak electrical power demand, water is released from the upper reservoir. As it falls to the lower reservoir it spins turbine-generators in the powerhouse and creates electricity. When electrical power demands are lower, these same turbine-generators are reversed, and become motorized pumps that can raise water from the lower reservoir and return it again to the upper reservoir. The generating capacity of the Blenheim-Gilboa Project is 1 million kilowatts—enough electrical power to light 10 million 100-watt bulbs.



The Blenheim-Gilboa Pumped Storage Power Project.

The Mine Kill State Park.



Water conduit with a 28-foot diameter.

The Power Authority of the State of New York developed the Mine Kill State Park, and restored the Lansing Manor complex as part of the construction of the Blenheim-Gilboa Project. The barn on the Lansing Manor property was restored to house a visitors' center, which includes exhibits and a theater. The silo attached to the barn is also used as a research field station, operated by the Atmospheric Sciences Research Center of the State University of New York at Albany. Lansing Manor House is one of the area's historic buildings. It is named for John Lansing, military secretary for Revolutionary War General Philip Schuyler. Later Lansing became a member of Congress, speaker to the State Assembly, and a New York Supreme Court Justice. Visitors will also want to see other historic sites nearby, including the old Stone Fort Museum in the Village of Schoharie and the old Blenheim Bridge in North Blenheim. The fort was the scene of a battle in the Revolutionary War in which a group of Tories and Indians was repulsed. The bridge, which was completed in 1828, survives today as the world's longest single-span covered bridge.

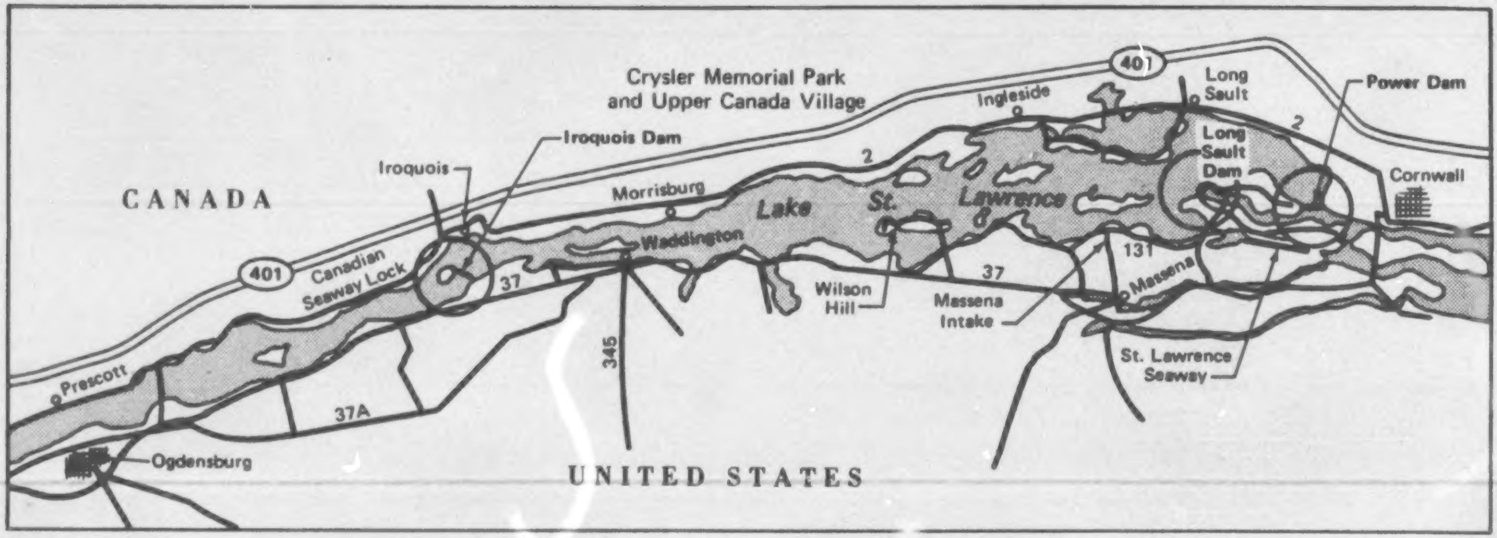
The Mine Kill State Park was also built as part of this project for operation by the Saratoga-Capital District State Park and Recreation Commission of the New York State Office of Parks and Recreation.

For additional information, please contact:

Director of Public Information
Power Authority of the State of New York
10 Columbus Circle
New York, New York 10019

Phone: (212) 397-6200

The lower reservoir dam and spillway.


Crysler Memorial Park
and Upper Canada Village
401
Ingleside
Long Sault
Power Dam
Iroquois Dam
Long Sault Dam
2
Cornwall
Iroquois
CANADA
Morrisburg
Lake St. Lawrence
Waddington
131
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Canadian Seaway Lock
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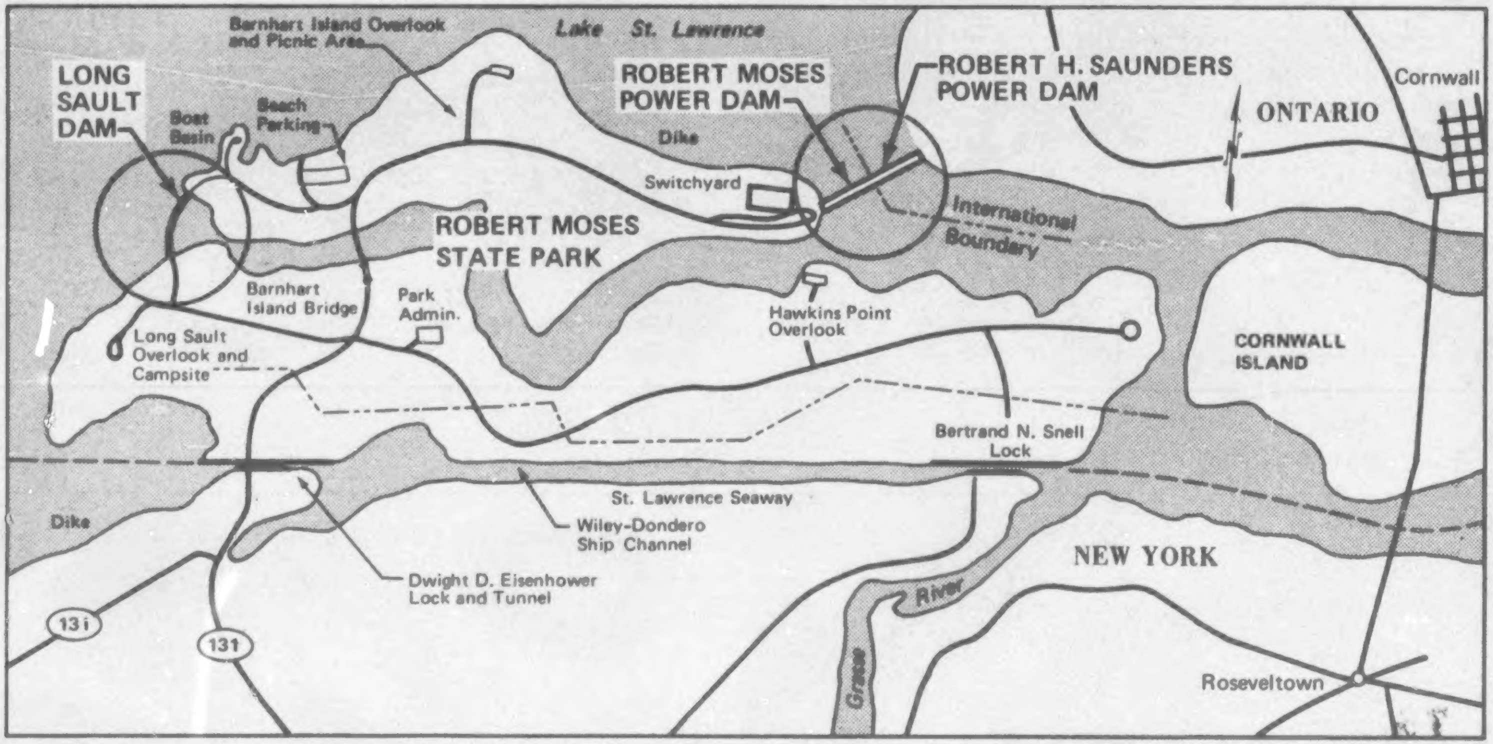
Massena
Wilson Hill
Massena Intake
Prescott
345
St. Lawrence Seaway
37A
Ogdensburg
UNITED STATES


Barnhart Island Overlook and Picnic Area
Lake St. Lawrence
LONG SAULT DAM
ROBERT MOSES POWER DAM
ROBERT H. SAUNDERS POWER DAM
Cornwall
Boat Basin
Beach Parking
ONTARIO
Dike
Switchyard
International Boundary
ROBERT MOSES STATE PARK
Barnhart Island Bridge
Park Admin.
Hawkins Point Overlook
Long Sault Overlook and Campsite
CORNWALL ISLAND
Bertrand N. Snell Lock
St. Lawrence Seaway
Dike
Wiley-Dondero Ship Channel
NEW YORK
Dwight D. Eisenhower Lock and Tunnel
Grasse River
131
131
Roseveltown

St. Lawrence Power Project
Massena, NY

New York

Visiting Hours
Mid-October to Mid-April: Open Monday through Friday from 8:00 a.m. to 4:30 p.m.

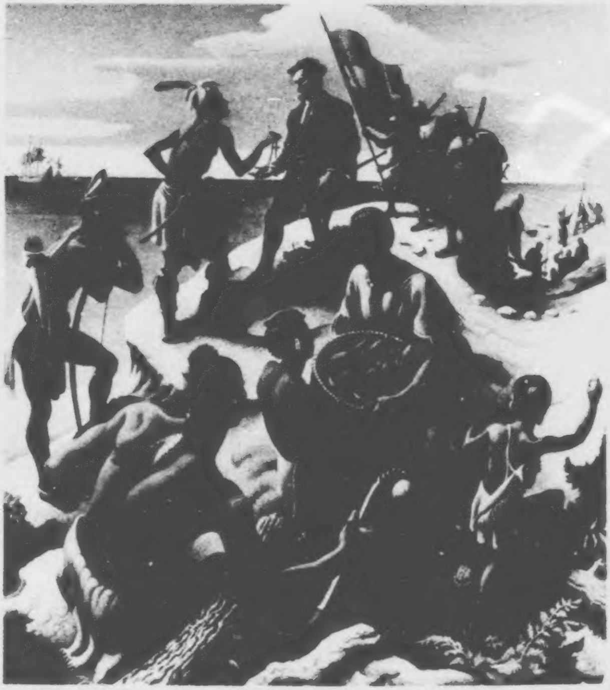
Mid-April to Labor Day: Open Monday through Sunday from 8:00 a.m. to 8:30 p.m.

Labor Day to Late September: Open Monday through Sunday from 8:00 a.m. to 7:00 p.m.

Weekend Hours: Open from 8:30 a.m. to 5:00 p.m. from April to mid-June and from late September to mid-October.

Holidays: Closed on Washington's Birthday, Thanksgiving, Christmas, and New Year's Day. Open until noon on Christmas Eve and New Year's Eve.

Facilities: Adjacent to the Robert Moses Power Dam is a wooded, 700-acre state park. The beaches, campsites, picnic groves, trailer parks, marina, boat basin, docks,



The Jacques Cartier mural by Thomas Hart Benton.

launching ramps, and scenic observation points of the Robert Moses State Park are used by thousands of people every year. Islands totalling 2600 acres still remain in their natural state. For example, at Wilson Hill, a 350-acre promontory into Lake St. Lawrence, there is a major New York State haven for wild Canada geese and other migratory and nonmigratory waterfowl.

The three-story visitor center at the St. Lawrence Power Project provides a cutaway model of the project, dioramas, terrain maps, motion pictures, and slide presentations. Paintings by Thomas Hart Benton illustrate historical highlights of the area. The observation deck on the Robert Moses Power Dam rises 116 feet above the lower river and offers a beautiful panorama of the St. Lawrence River, Lake St. Lawrence, parts of eastern Canada, and the Adirondack Mountains.

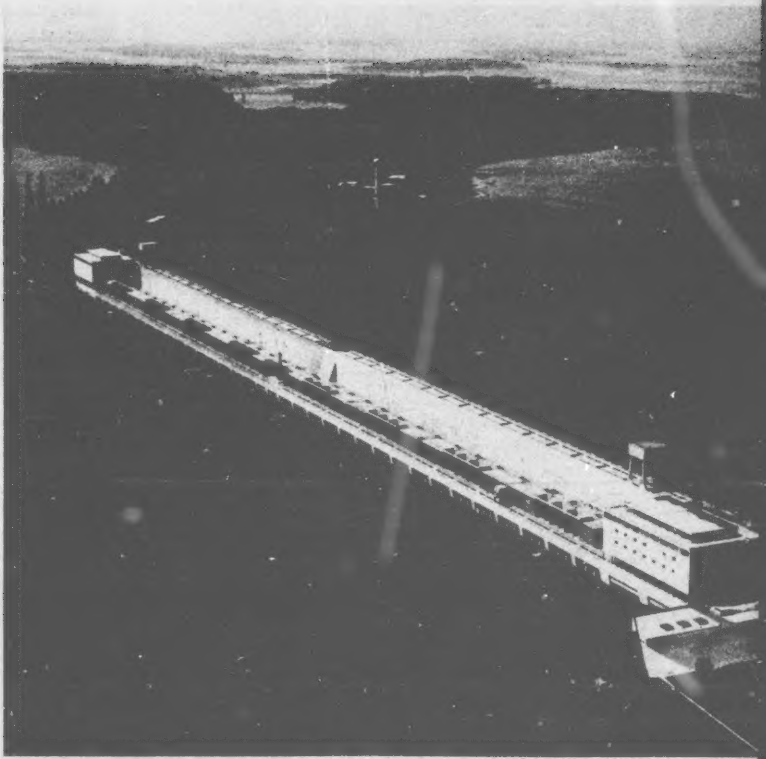
The majestic St. Lawrence River, largest east-west river on the North American Continent, had its first European visitor in 1536, when the Frenchman Jacques Cartier claimed Canada for King Francis I. Soon the St. Lawrence became the gateway for a series of French explorers and missionaries, each intent on opening up the rich and lush lands of New France. Samuel de Champlain, who founded Quebec City in 1608, visited the region.

However, it was not until 1792 that water power was used in making the St. Lawrence area grow. Almost 200 years after the founding of Quebec City, a lumberman named Amable Faucher came up river from Montreal and named his new settlement Massena, after one of Napoleon's marshals, André Masséna. Faucher constructed a dam across the Grasse River and built a sawmill to shape tall pine trees into spars for sailing ships.

In 1804 William Barnhart, a British loyalist who had fled New York State, constructed a grist mill and another sawmill on Barnhart Island. Soon, with power from the mighty St. Lawrence and its tributaries, the fertile land was thriving with the arrival of new settlers. Then in 1899, almost a century later, the first hydroelectric plant appeared in the area. A canal was dug from the St. Lawrence River to the Grasse River. The 47-foot drop at the dam generated 70,000 kilowatts, and this power brought the area another new industry—aluminum production.

The Great Lakes watershed accumulates rain from a 300,000-square-mile area of the United States and Canada, and represents the largest concentration of fresh water on the surface of the earth. The 100,000-square-mile area of the Great Lakes themselves serves as a huge reservoir, which provides one of the most uniform water flows of any of the great river systems of the world. Ultimately, almost all the water from this watershed pours into the St. Lawrence River. To harness this flow, the United States and Canada in 1954 agreed to build three dams and 16 miles of dikes to replace the turbulent International Rapids section of the river with the expanse of Lake St. Lawrence.

At the western end of Lake St. Lawrence is the 1980-foot Iroquois Dam. At the eastern end of this lake, near Massena, New York, the 2960-foot-long Sault Dam closes the river's southern channel. From Barnhart Island to the Canadian mainland near Cornwall, Ontario, the 3300-foot Robert Moses–Robert H. Saunders Power Dam closes the river's northern channel. At the Moses-Saunders Power Dam the lake water falls 81 feet, providing the "head" necessary to generate electricity. Here, the water of the St. Lawrence drives 16 turbine-generators on each side of the international boundary. Each of these two groups of generators can



The St. Lawrence Power Project.

produce 900,000 kilowatts of electrical energy, with a firm capability of about 800,000 kilowatts.

As Lake St. Lawrence was created, its bed deepened and three locks provided the final link to open the entire St. Lawrence River–Great Lakes water system to deep-draft ocean-going vessels. Thus the development of power on this mighty river also made possible the St. Lawrence Seaway, which opened a great inland waterway stretching about 1834 statute miles from Duluth, Minnesota, to Sept-Iles, Quebec, at the mouth of the St. Lawrence. All of this was accomplished on a waterway that for many miles forms the international boundary between the United States and Canada. Thus, the St. Lawrence Power Project represents one of those truly rare cases in history in which two great nations have joined in such a large beneficial cooperative endeavor.

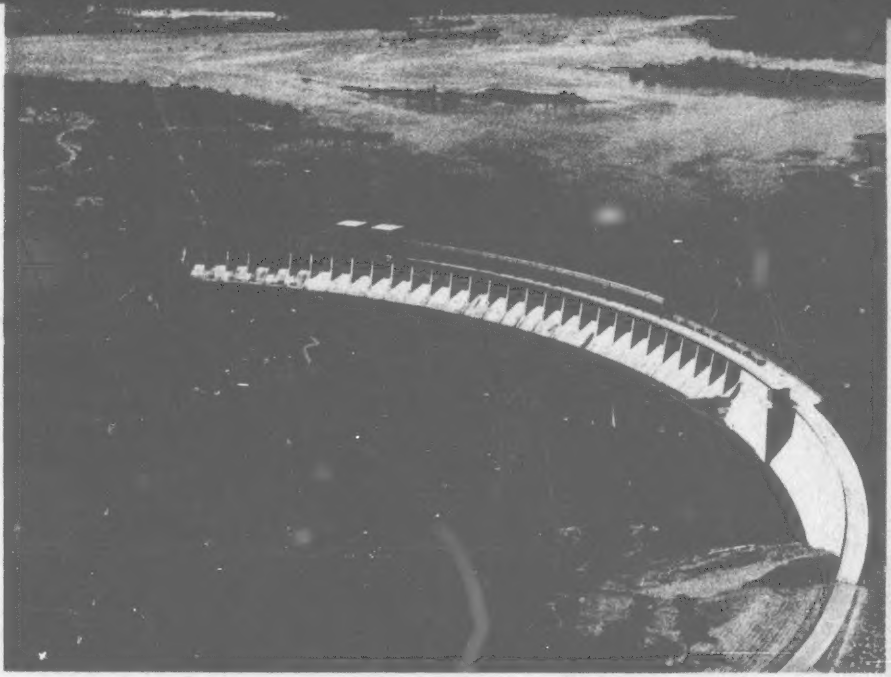
For further information, please contact:

Director of Public Information
Power Authority of the State of New York
10 Columbus Circle
New York, New York 10019

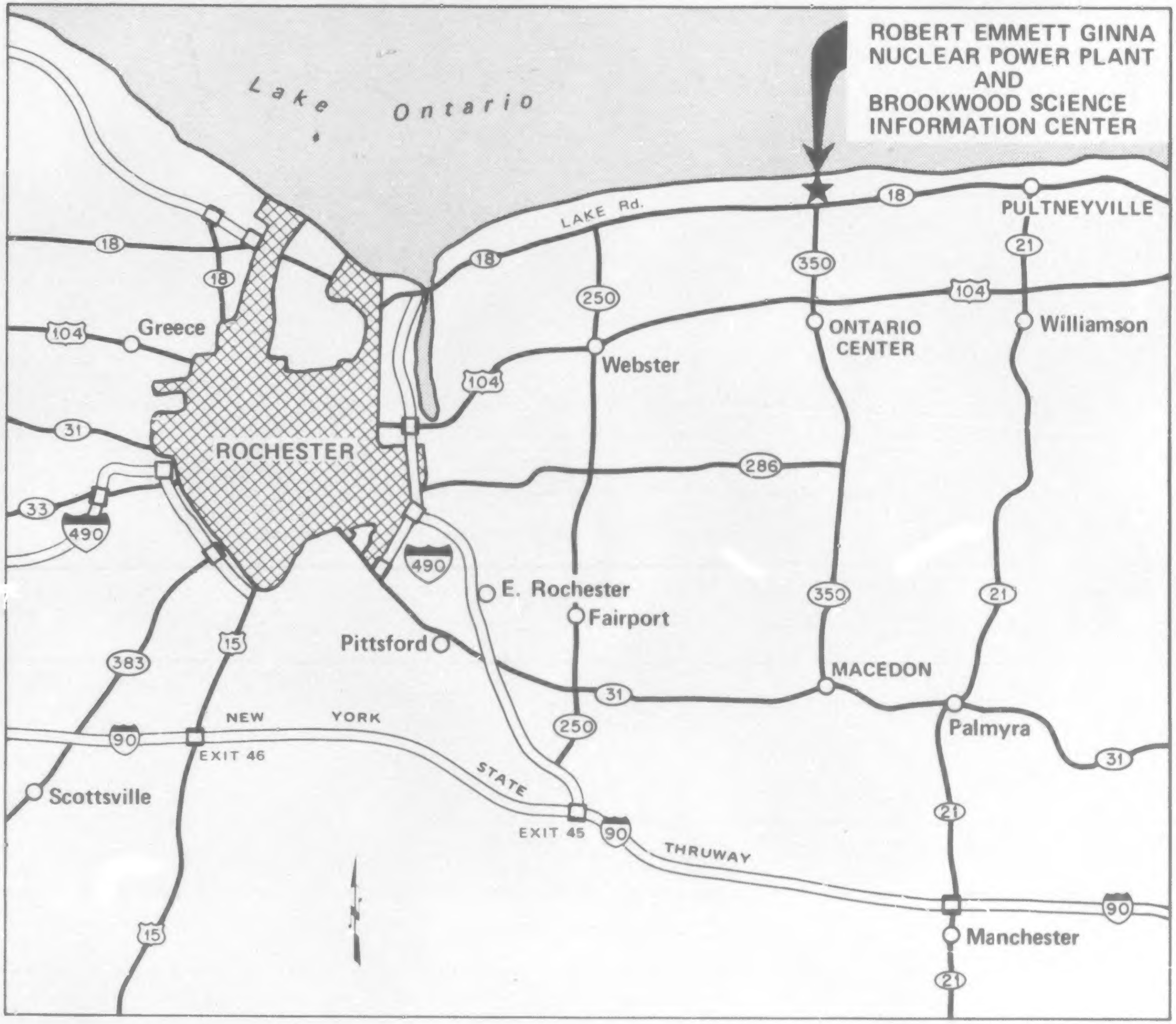
Phone: (212) 397-6200

ter intake portal at the St. Lawrence Power dam.

The Wilson Hill Wildlife Refuge.



The Long Sault Dam.


ROBERT EMMETT GINNA
NUCLEAR POWER PLANT
AND
BROOKWOOD SCIENCE
INFORMATION CENTER
Lake Ontario
LAKE Rd.
18
PULTNEYVILLE
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350
104
250
Greece
ONTARIO
CENTER
Williamson
Webster
ROCHESTER
31
286
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E. Rochester
Fairport
Pittsford
15
383
MACEDON
Palmyra
NEW YORK STATE THRUWAY
90
EXIT 46
EXIT 45
Scottsville
Manchester

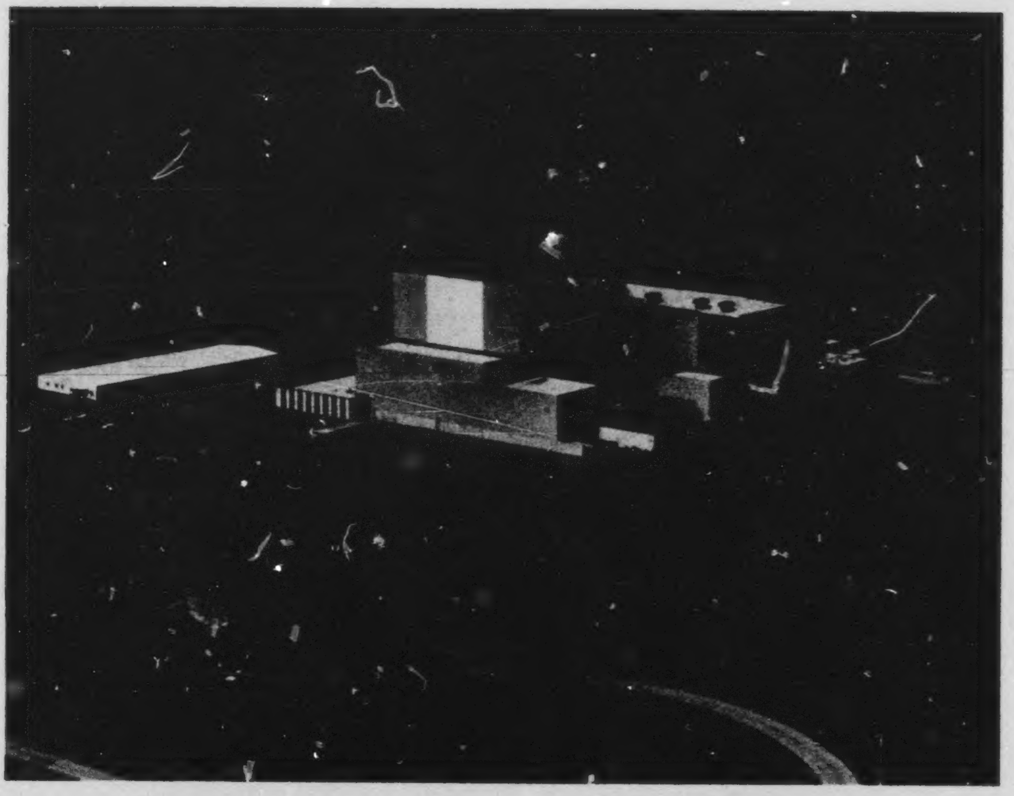
Robert Emmett Ginna Nuclear Power Plant
Rochester, NY

Visiting Hours: The Brookwood Science Information Center is open Sunday through Thursday from 10:00 a.m. to 4:00 p.m.

The Robert Emmett Ginna Nuclear Power Station is on a 338-acre site, called Brookwood, which is about 16 miles east of Rochester, New York, on the south shore of Lake Ontario. Also at this location, whose beauty has been maintained through the careful preservation of original orchards, vineyards, and trees, is the Brookwood Science Information Center.

The Brookwood Information Center is at the intersection of Lake Road and Ontario Center Road. It is a short drive from Rochester or take Exit 45 from the New York State Thruway.

The Robert Emmett Ginna Nuclear Power Plant has a net electric capacity of 490,000 kilowatts and is the largest and most economical plant on the Rochester Gas & Electric



The Robert Emmett Ginna Nuclear Power Plant with the Brookwood Information Center in the foreground.

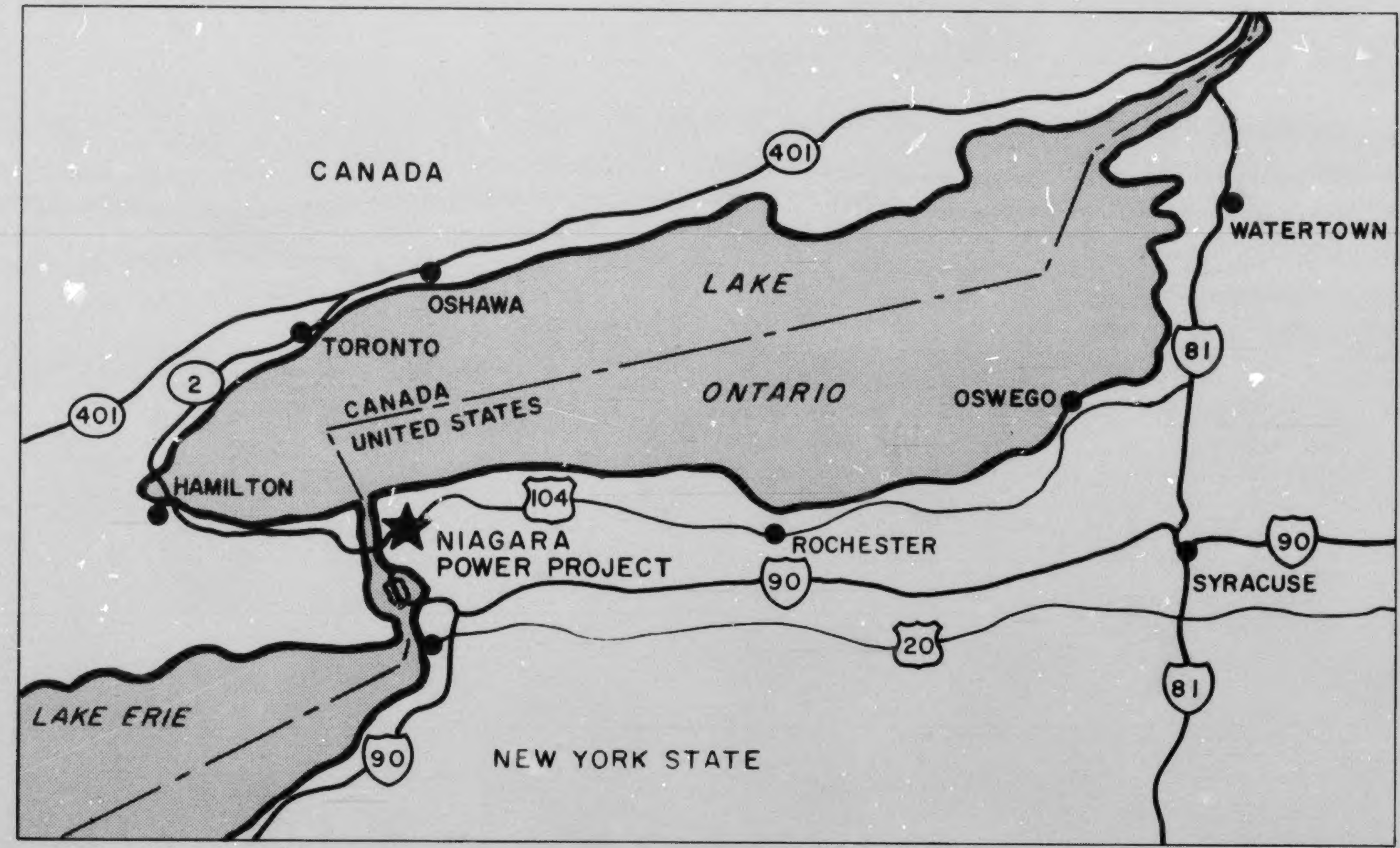
System. The power it generates is sufficient to supply the electricity needs of a city of more than a half-million people. The heart of the power station is a pressurized-water reactor, which is fueled with slightly enriched uranium in pellet form. Construction began in April 1966, and the plant generated its first electricity in December 1969. The 42-month period between ground-breaking and start-up established an industry record for the construction of a nuclear power plant.

The Brookwood Science Information Center is in an apple orchard beside Lake Ontario. This facility, overlooking the nuclear power plant, is open to the public, and tells the story of nuclear energy. Most exhibits are animated and accompanied by audio descriptions. One of the most interesting exhibits shows the operation of a pressurized-water reactor. An auditorium program tells the nuclear energy story in motion pictures and slides, and the Brookwood staff presents these visual programs for both technical and nontechnical groups. Special arrangements can be made in advance for group tours.

For additional information or advance reservations for group tours, please contact:

Rochester Gas & Electric Corporation
Brookwood Science Information Center
89 East Avenue
Rochester, New York 14604

Phone: (716) 546-2700, extension 291-203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TORONTO
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CANADA
UNITED STATES
ONTARIO
OSWEGO
401
HAMILTON
104
NIAGARA POWER PROJECT
ROCHESTER
90
90
SYRACUSE
20
81
LAKE ERIE
90
NEW YORK STATE

Niagara Power Project
Niagara Falls, NY

New York

Visiting Hours: The project is open daily from 9:00 a.m. to 5 p.m. from September through June. In July and August it is open from 9:00 a.m. to 9:00 p.m. It is closed on Christmas and New Year's Day.

The Niagara Power Project has a net electric capacity of 2,190,000 kilowatts and is one of the world's largest hydroelectric installations.

Long before its scenic beauty brought millions of visitors to stand in awe at the brink of Niagara Falls, the power in the rushing water had already attracted the attention of early pioneers. The first pioneer to settle in the area was Daniel Joncaire, a Frenchman. While the French and Indian Wars raged in nearby regions, Joncaire established the earliest portage around the Great Falls. In 1757 his son, Chabert Joncaire, dug a tiny loop canal near the site of the new American Rapids Bridge to Goat Island. This primitive power development involved a waterwheel powering a sawmill.

Hydroelectric power was first produced at Niagara Falls in the early 1880s, when a brush dynamo combined with a waterwheel was installed in Prospect Park above the Falls to illuminate the park's fountains with two arc lights. On December 14, 1881, the first public demonstration of electricity at Niagara Falls took place. Water from the upper river flowed down a canal to turn DC generator arc light machines. The output was transmitted by direct current to operate arc lamps on village streets and at a few downtown businesses.

In 1895 the first large-scale output of commercial hydroelectric power at Niagara Falls began when electricity flowed from the Edward Dean Adams Station. This technical development revolutionized the electric power industry. The Adams plant employed a short intake canal and a 7000-foot long, 18 x 21-foot diameter discharge tunnel, which ran under the downtown portion of the City of Niagara Falls. River water dropped about 135 feet down vertical shafts to spin turbines that were rated at 5000 horsepower each. On November 16, 1896, electricity was first transmitted from the Adams plant to the City of Buffalo, 20 miles distant, using alternating current. This event marked the first long-distance transmission of electricity in volume from a central power station. The Adams Plant generators, pioneer machines in the commercial production of alternating current, were still in use until the plant shut down permanently on September 30, 1961. At that time the new Niagara Power Project could use all the water allotted to the United States under the terms of the 1950 U. S.–Canadian Treaty.

The Niagara River forms the boundary between the State of New York and the Province of Ontario, Canada, between Lake Erie and Lake Ontario. Although the river is only 36 miles long it drains four of the five Great Lakes and maintains an average flow of 202,000 cubic feet per second, night and day year-round, making it one of the world's most dependable sources of hydroelectric power. (A cubic foot of water is equal to approximately 7½ gallons.) The Niagara River drops almost 326 feet between Lake Erie and Lake Ontario. This drop is most spectacular at Niagara Falls with its sheer plunge of 176 feet. Almost all the remaining drop occurs in the rapids just above and in Niagara Gorge. In addition to its enormous power potential, the Niagara River and Falls remain one of the world's great scenic attractions. It is not unusual, therefore, that the use of the Niagara's power potential has always been accompanied by environmental and scenic considerations. For example, the 1950 U. S.–Canadian Treaty, under which the new Niagara Power Project was built, provides that in specified daylight hours during the tourist season at least 100,000 cubic feet of water per second must flow over Niagara Falls. At other times, when scenic considerations are of a lesser significance, the flow may be reduced to 50,000 cubic feet per second, with the diverted water being shared between the two nations.

The modern Niagara Power Project, with its capability of 2,400,000 kilowatts, develops the full potential of the United States' portion of Niagara River waters available for the generation of electricity after preserving the scenic beauty of Niagara Falls. The facility first delivered electric power on February 10, 1961.

To produce electricity at the Niagara Project, water from the Niagara River is diverted about 2½ miles above the falls and flows through two underground conduits to the forebay of the Robert Moses Niagara Power Plant, 5 miles below the falls. This plant location provides maximum use of the drop in the river to spin turbines, which, in turn, rotate the generators that produce electricity. The water intake above the falls is marked by two 100-foot high structures that house 400-ton intake gates. The conduits themselves, each 46 feet wide and 66 feet high, are covered and the area above is landscaped. All the water available for power production at the Robert Moses Niagara Power Plant falls about 305 feet through 24-foot penstocks to turn 13 turbine-generators, each rated at 150,000 kilowatts.

East of the Moses Plant forebay is the Lewiston Pump-Generating Plant. Beyond it is the reservoir where a portion of the water available at night is stored for use during the day at times of peak electric power demand. Each of 12 reversible turbine-generator pump motors at this pumped-storage facility (which obtains its pumping energy from the Moses plant) has a nominal generating capacity of 20,000 kilowatts. The Lewiston facility thus provides an added degree of flexibility to the Niagara Power Project.

The Niagara Power Vista Information Center provides visitors with a spectacular view of the Niagara River and the Gorge 350 feet below. This facility, topping the south abutment of the Robert Moses Power Plant, is open to the public without charge. From the reception foyer an escalator takes visitors to a glass-enclosed bridge spanning the Robert Moses Parkway and Lewiston Road, which run side by side along the top of the power plant. The uppermost level of the Power Vista has an open observation deck on three sides and visitors can also see a large mural of Father Louis Hennepin by the artist Thomas Hart Benton. Father Hennepin, a Franciscan missionary accompanying the French explorer, LaSalle, was the first white man to write at length of the power and beauty of Niagara Falls, which he saw in 1678. Other exhibits within the Power Vista include a diorama of the main power plant, a large terrain map (complete with running water), and short films and slides explaining the conversion of water power into electricity.

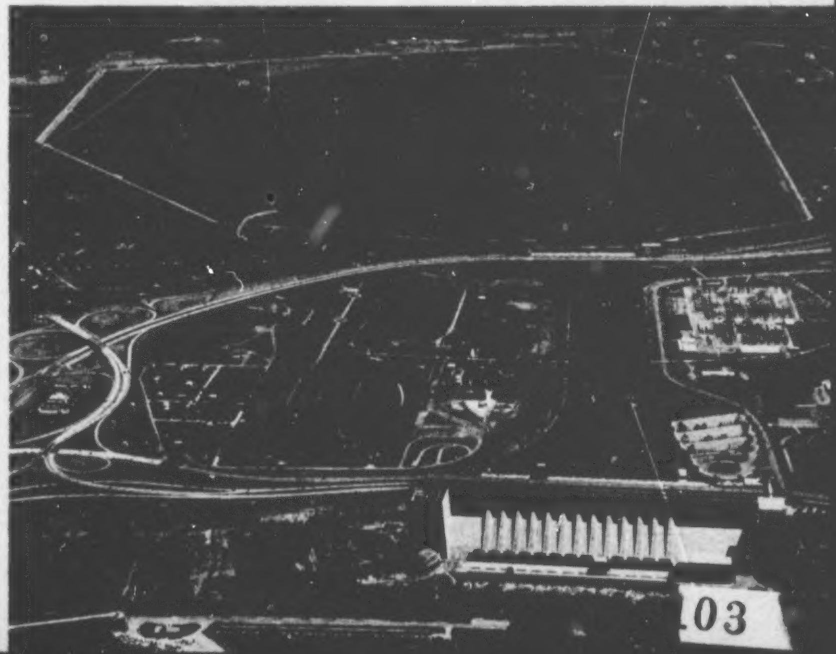
Numerous state park facilities, operated by the Niagara Frontier State Park Commission, are also found in the area.

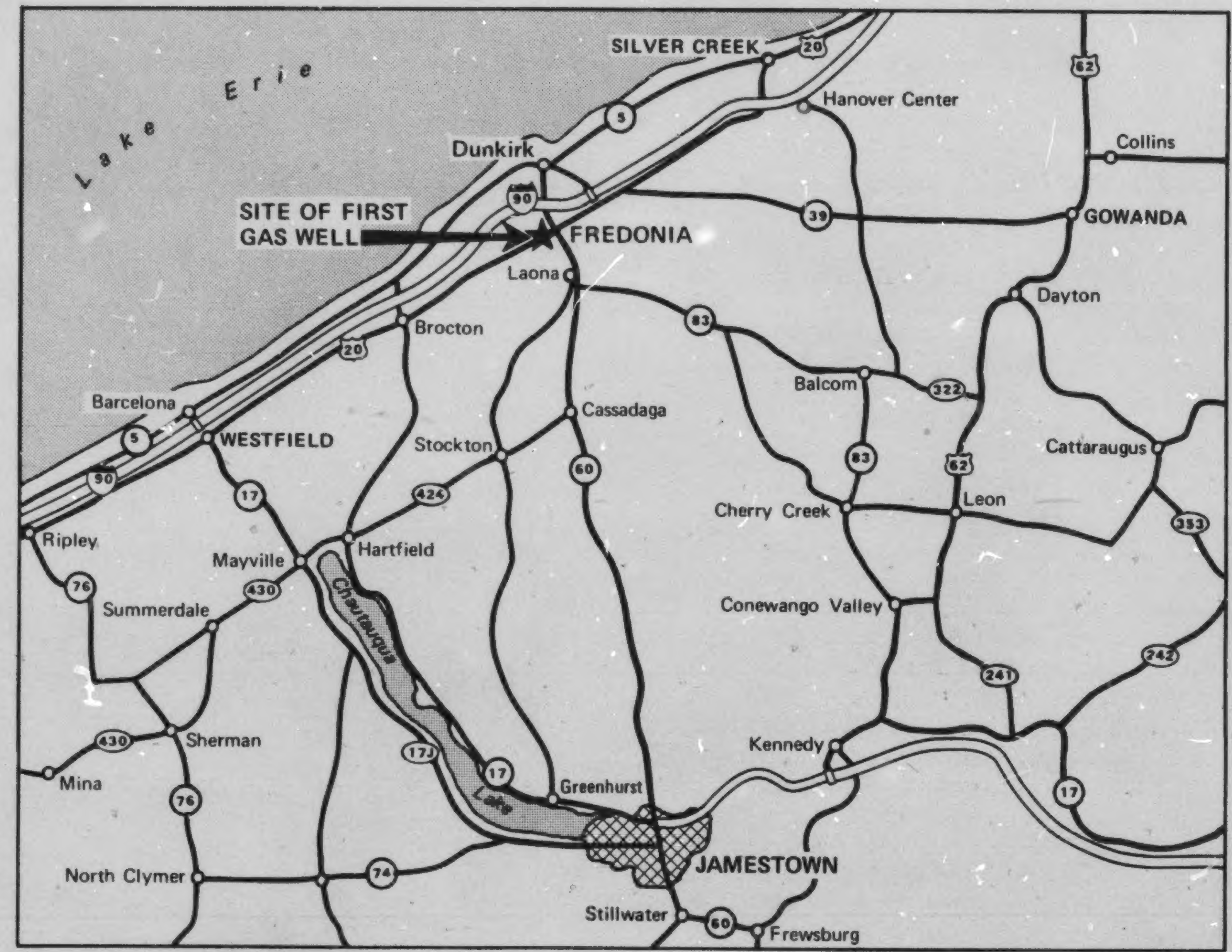
For additional information, please contact:

Director of Public Information
Power Authority of the State of New York
10 Columbus Circle
New York, New York 10019

Phone: (212) 397-6200

The Niagara Power Project.




Lake Erie
SILVER CREEK
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Hanover Center
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Collins
Dunkirk
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GOWANDA
SITE OF FIRST GAS WELL
FREDONIA
Laona
Dayton
83
Brocton
20
Balcom
322
Barcelona
Cassadaga
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WESTFIELD
Stockton
Cattaraugus
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Cherry Creek
Leon
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Ripley
Hartfield
Mayville
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Chautauqua
Summerdale
Conewango Valley
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Sherman
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Kennedy
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Mina
Lake
Greenhurst
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JAMESTOWN
North Clymer
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Stillwater
60
Frewsburg

Site of First Gas Well
Fredonia, NY

New York

The generally accepted birthplace of the natural gas industry in the United States is Fredonia, New York. Through this village flows Canadaway Creek, which empties into Lake Erie. During colonial times settlers noticed mysterious bubbles of gas rising to the surface at various places along the creek. The creek's name comes from the Seneca Indian expression "Gon-no-do-wao", which means "flowing through the hemlocks". From time to time these mysterious gas bubbles would be ignited, perhaps as a youthful prank, and the "burning waters" would then create great interest among the early colonists.

In 1821 a young gunsmith named William A. Hart started digging a well at a spot on the Canadaway, where these gas bubbles flowed quite freely. Although his equipment was crude, the well was successfully sunk and the gas drawn off was used for illumination. In 1825, the Marquis de Lafayette, a hero of the Revolutionary War, arrived at Fredonia late one evening, during his second visit to the

United States. To the French nobleman's amazement, he found this tiny frontier village brilliantly illuminated in his honor by natural gas.

To mark the site of America's first gas well and also to commemorate the centenary of Lafayette's visit, a boulder with a bronze tablet was placed near the east bank of the Canadaway Creek on Fredonia's West Main Street (Route 20). In 1966 the Iroquois Gas Corporation purchased the land where William Hart's original well was located and 2 years later built a regional office on the site. Future plans call for the erection of a museum and permanent memorial. At present, the 1925 tablet, placed by the Benjamin Prescott Chapter of the Daughters of the American Revolution, pays tribute to the birthplace of the natural gas industry.

For additional information about this site please contact:

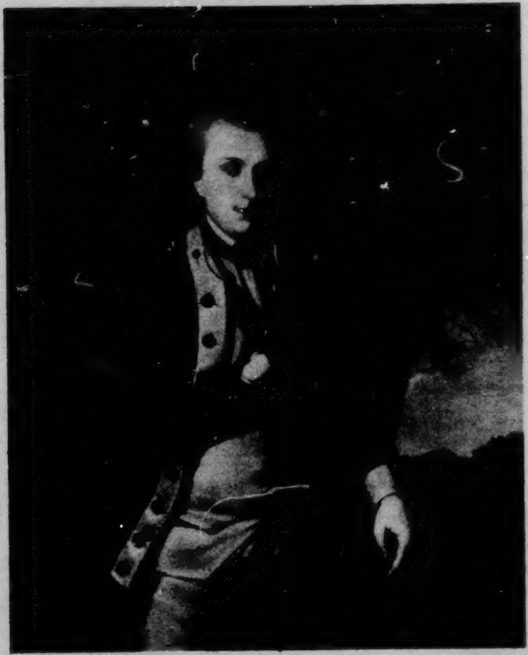
Fredonia Chamber of Commerce
Temple Street
Fredonia, New York 14063

Phone: (716) 672-6456

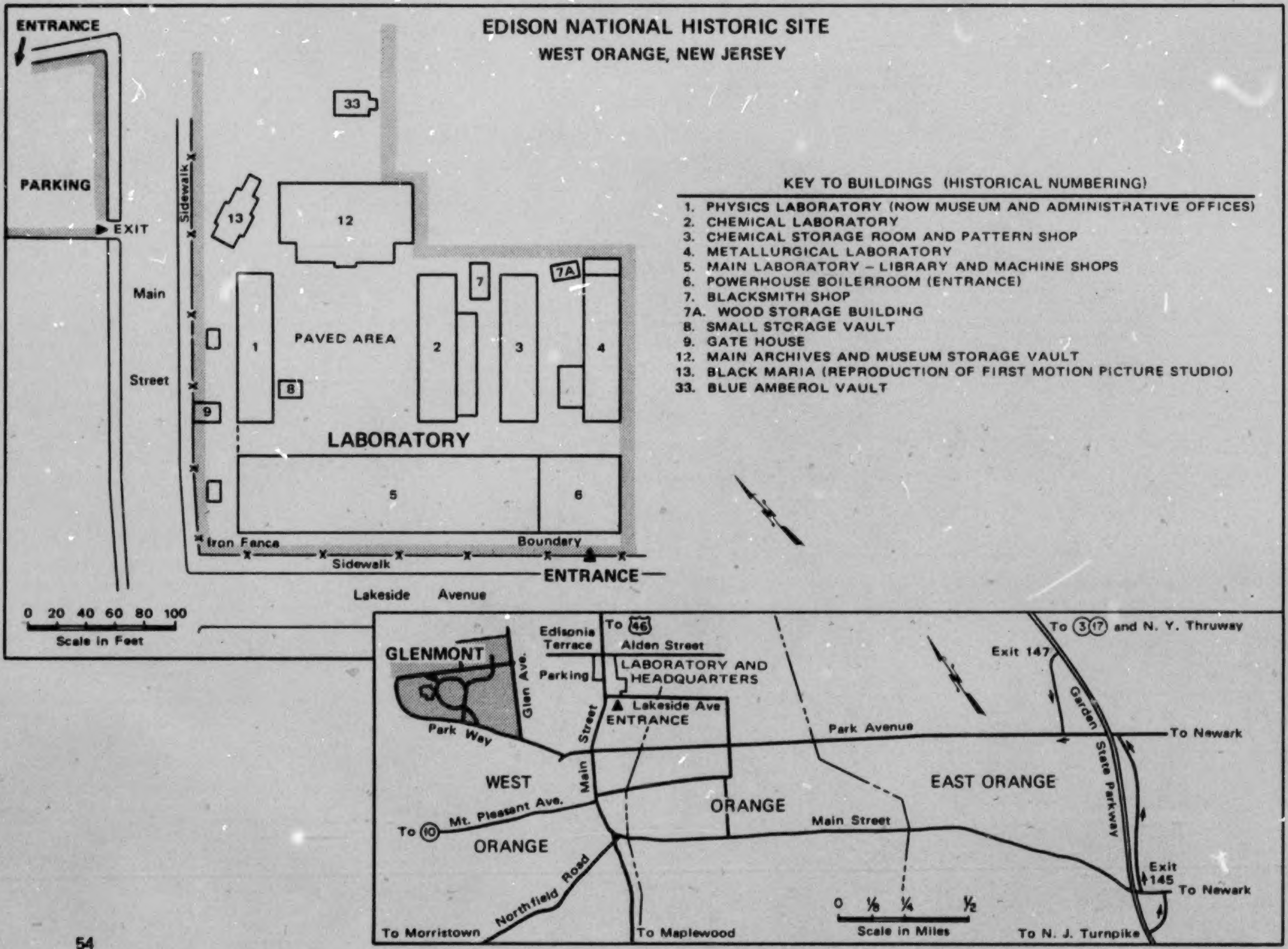
or

National Fuel Gas
455 Main Street
Buffalo, New York 14023

Phone: (716) 856-6990



Marquis de Lafayette.



EDISON NATIONAL HISTORIC SITE
WEST ORANGE, NEW JERSEY

KEY TO BUILDINGS (HISTORICAL NUMBERING)

1. PHYSICS LABORATORY (NOW MUSEUM AND ADMINISTRATIVE OFFICES)
2. CHEMICAL LABORATORY
3. CHEMICAL STORAGE ROOM AND PATTERN SHOP
4. METALLURGICAL LABORATORY
5. MAIN LABORATORY – LIBRARY AND MACHINE SHOPS
6. POWERHOUSE BOILERROOM (ENTRANCE)
7. BLACKSMITH SHOP
7A. WOOD STORAGE BUILDING
8. SMALL STORAGE VAULT
9. GATE HOUSE
12. MAIN ARCHIVES AND MUSEUM STORAGE VAULT
13. BLACK MARIA (REPRODUCTION OF FIRST MOTION PICTURE STUDIO)
33. BLUE AMBEROL VAULT

ENTRANCE
PARKING
EXIT
Main
Street
Sidewalk
33
13
12
7
7A
1
PAVED AREA
2
3
4
8
9
LABORATORY
5
6
Iron Fence
Boundary
Sidewalk
ENTRANCE
Lakeside Avenue
0 20 40 60 80 100
Scale in Feet
Edisonia Terrace
To 46
Alden Street
GLENMONT
Glen Ave.
Parking
LABORATORY AND HEADQUARTERS
Lakeside Ave ENTRANCE
Park Way
Main Street
Park Avenue
To Newark
WEST
ORANGE
Mt. Pleasant Ave.
To 10
ORANGE
EAST ORANGE
Main Street
Northfield Road
To Morristown
To Maplewood
0 1/8 1/4 1/2
Scale in Miles
To N. J. Turnpike
Exit 145
To Newark
Garden State Parkway
Exit 147
To 3 17 and N. Y. Thruway

Edison National Historic Site
Orange, NJ

Visiting Hours: The site is open Monday through Saturday. Tours of the laboratory are conducted continuously from 9:30 a.m. to 4:30 p.m. Tours of Glenmont, Edison's home, begin every hour from 10 a.m. to 4 p.m. The site is closed on Sundays, Thanksgiving, Christmas, and New Year's Day. Reservations for school and other group visits should be made well in advance.

The Edison National Historic Site is administered by the National Park Service, U. S. Department of the Interior. The site headquarters is located on Main Street at Lakeside Avenue in West Orange, New Jersey, some 2 miles west of the Garden State Parkway and a half-mile north of Interstate 280.

At the West Orange Laboratory, into which he moved on Thanksgiving Day 1887, Thomas Alva Edison could "build anything from a lady's watch to a locomotive". There, for the next 44 years, Edison and his carefully chosen associates pursued their goal of inventing and developing things that "every man, woman, and child in the world wanted" and would buy at prices they could afford. Out of West Orange came the motion picture camera, vastly improved phonographs, and both silent and sound movies. Other Edison patents covered electric motors and generators, incandescent and fluorescent lamps, a method for making carbolic acid from coal tar, and a nickel-iron alkaline electric storage battery that, by itself, required 50,000 experiments. Edison's establishment at West Orange also set the pattern for the great industrial research organizations that today serve the world.

Still preserved at West Orange are the main laboratory building and five smaller red brick buildings that comprise the physics laboratory, chemical laboratory, metallurgical laboratory, chemical storage room and pattern shop, and powerhouse boiler room.

The interiors of many of these structures are little changed from their appearance in the inventor's own time. Some contain exhibits like his original tinfoil phonograph of 1877, his 1889 "Strip Kinetograph" and other motion picture apparatus, and early electric light and power equipment. Edison's machine shops and stockroom are still here, as well as the double-tiered library containing his own desk and the cot on which he took catnaps when working round the clock. The chemical laboratory is little changed from its appearance in 1927-31, when Edison was conducting his rubber experiments.

Not far from the laboratory buildings, and part of this site, is Glenmont, the handsome country estate that Edison purchased in 1886. Here he found relaxation and time to generate new ideas to test at the laboratory.

The house, built for a New York executive in 1880 and predominantly Victorian in architectural style, today looks much the same as when the Edisons occupied it. Almost all the original furnishings remain in place and include family portraits and other fine paintings and prints, books by the hundreds, heirlooms and period pieces, gifts from the great and near-great of many lands, and all the little accessories of living that make a house a home. The beautifully landscaped 13½-acre estate also contains a barn, garage, greenhouse, gardener's cottage, potting shed, and other outbuildings. On the grounds, in a quiet green bower, are the graves of Thomas Edison and his wife, Mina.

For additional information, please contact:

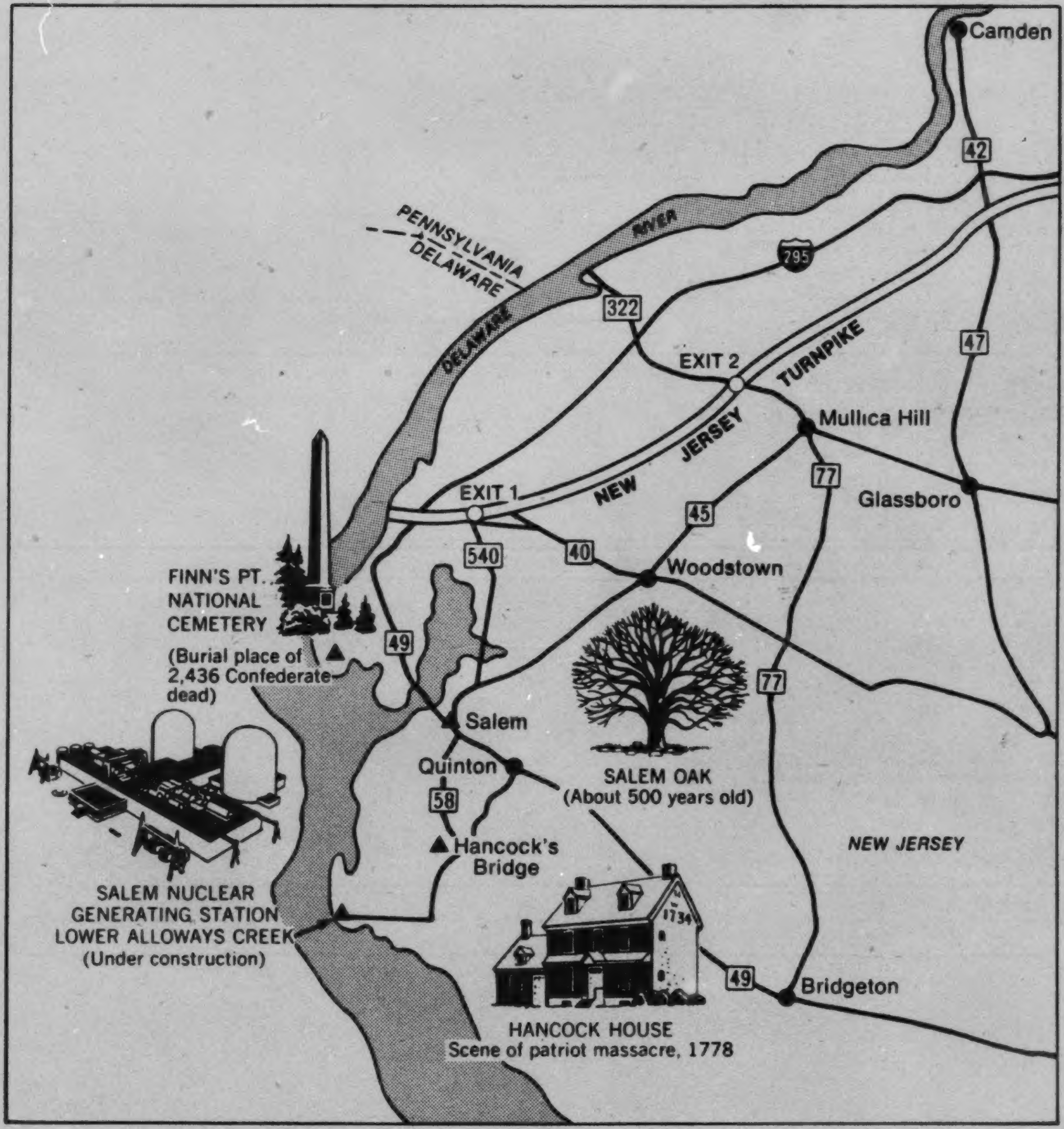
Park Manager, National Park Service
Edison National Historic Site
P. O. Box 126
Orange, New Jersey 07051

Phone: (201) 736-0550

Thomas Edison and his wife, Mina.

Edison in the yard of his home, Glenmont.

Glenmont as it appears today.


Camden
42
PENNSYLVANIA
DELAWARE
DELAWARE RIVER
295
322
EXIT 2
NEW JERSEY TURNPIKE
47
Mullica Hill
77
Glassboro
EXIT 1
45
40
540
Woodstown
49
Salem
Quinton
58
Hancock's Bridge
77
NEW JERSEY
1734
49
Bridgeton

FINN'S PT. NATIONAL CEMETERY
(Burial place of 2,436 Confederate dead)

SALEM OAK
(About 500 years old)

SALEM NUCLEAR GENERATING STATION LOWER ALLOWAYS CREEK
(Under construction)

HANCOCK HOUSE
Scene of patriot massacre, 1778

Salem Nuclear Generating Station
Salem, NJ

Visiting Hours: At the Salem construction site an overlook area and a building containing displays are open Wednesday, Thursday, and Friday from 9:00 a.m. to 4:00 p.m., Saturday from 10:00 a.m. to 6:00 p.m., and Sunday from 12:00 noon to 6:00 p.m.

Salem Station can be easily reached from Exit 1 of the New Jersey Turnpike. Follow Route 49 through Salem; then take York Road to Hancock's Bridge and follow the signs at Alloway Neck Creek Road to Salem Station.

Public Service Electric & Gas Company (PSE&G) is building and will operate the Salem Nuclear Generating Station. The electrical energy produced by this plant will be shared by the joint owners: Public Service Electric & Gas Company, Philadelphia Electric Company, Atlantic Electric Company, and Delmarva Power and Light Company. The

12
12

plant will have a pressurized-water reactor, and Unit 1 will have a net electrical capacity of 1,090,000 kilowatts. When completed, one sixth of all electrical energy generated in New Jersey will come from this site.

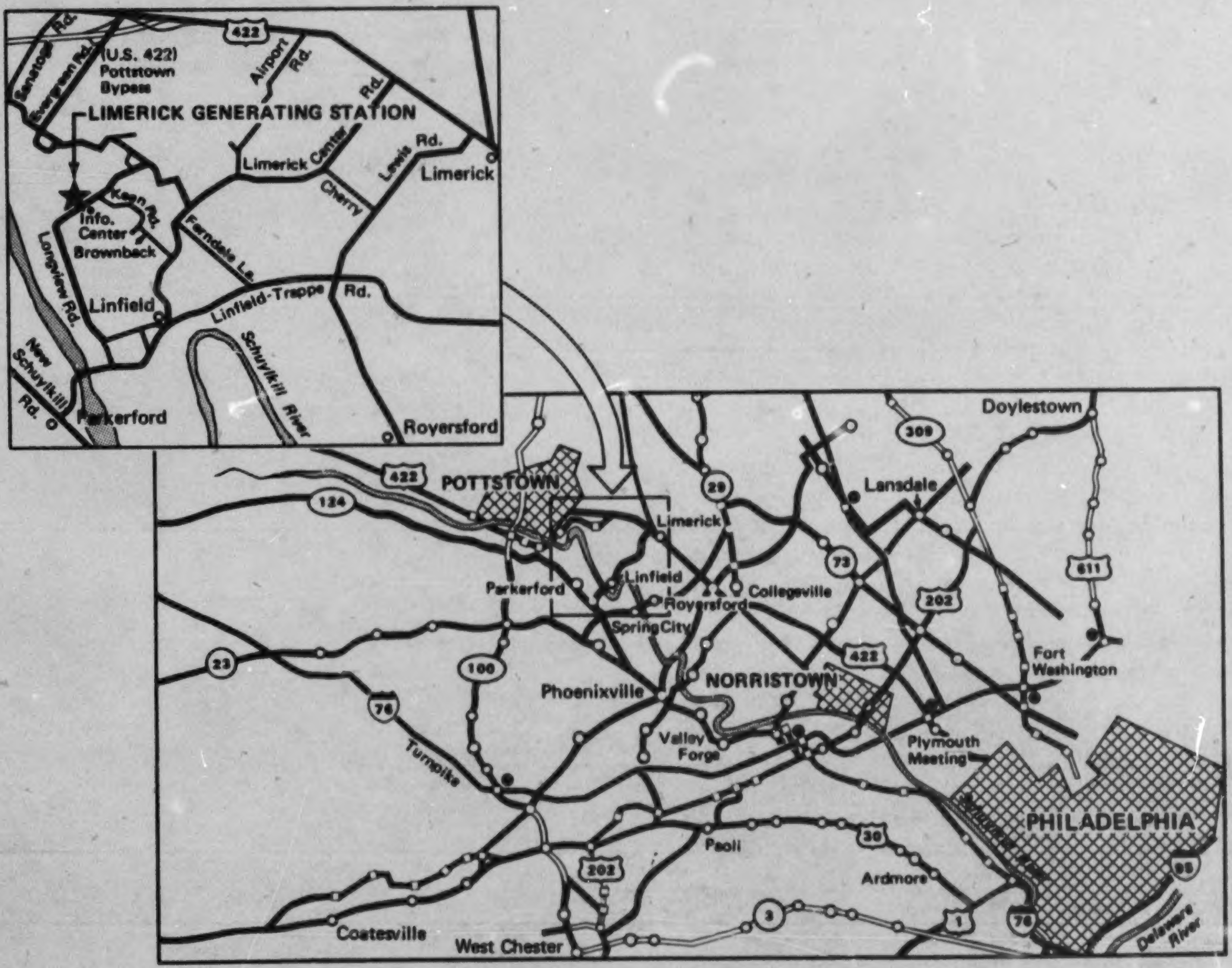
PSE&G also maintains "The Second Sun", a unique floating information center housed in a refurbished ferryboat, originally launched in 1901. The ferry is moored at Burlington, New Jersey, as a part of a larger Bicentennial celebration. Take Exit 5 of the New Jersey Turnpike, head west on Route 541, and follow the signs. The boat is open Wednesday, Thursday, and Friday from 9:00 a.m. to 4:00 p.m., Saturday from 10:00 a.m. to 6:00 p.m., and Sunday from 12:00 noon to 6:00 p.m. The vessel reflects charm and fascination of a bygone era when thousands of passengers were transported across the Hudson River between Jersey City and New York City. Visitors may shoot a neutron gun that splits an atom and starts a chain reaction, press a button to see the mining and processing of uranium, and light a bulb using their own energy. They may even operate a model nuclear reactor. A new and exciting multi-media Bicentennial theater presentation, "New Jersey 200", describes the history and tradition of New Jersey over the past 200 years.

Educators should note that arrangements can be made for special demonstrations, discussions, and films about electricity and nuclear energy for group visits aboard "The Second Sun". Teachers and others interested in scheduling such large group visits should telephone (201) 622-7000 and request "The Second Sun". For additional information, please contact:

"The Second Sun" is a floating nuclear information center.

General Manager—Environmental Affairs
Public Service Electric & Gas Company
80 Park Place
Newark, New Jersey 07101

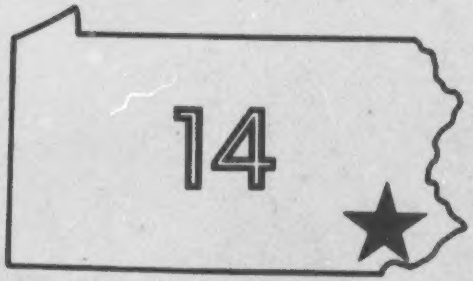
Phone: (201) 622-7000



LIMERICK GENERATING STATION
422
(U.S. 422) Pottstown Bypass
Sanatoga Rd.
Evergreen Rd.
Airport Rd.
Limerick Center Rd.
Lewis Rd.
Limerick
Cherry
Keen Rd.
Info. Center
Brownback
Ferndale La.
Longview Rd.
Linfield
Linfield-Trappe Rd.
New Schuylkill Rd.
Schuylkill River
Parkerford
Royersford
Doylestown
309
Lansdale
POTTSTOWN
422
124
29
Limerick
73
611
Linfield
Parkerford
Collegeville
Royersford
202
Spring City
23
422
100
Fort Washington
Phoenixville
NORRISTOWN
76
Turnpike
Valley Forge
Plymouth Meeting
PHILADELPHIA
Paoli
30
202
95
Ardmore
3
1
76
Coatesville
West Chester
Delaware River

Limerick Generating Station
Linfield, PA

Pennsylvania



Visiting Hours: The information center is open Wednesday through Sunday and holidays from 10 a.m. to 4:00 p.m. It is closed on Christmas and New Year's Day.

To reach the Limerick site from Pottstown, Pennsylvania, and west take the Pottstown By-Pass and travel east to the Sanatoga exit. Then turn right onto Evergreen Road, left onto Sanatoga Road, and right onto Longview Road. The information center is on the left. To reach the Limerick site from Norristown and east, take U. S. 422, travel west, and turn left onto the Limerick Center Road. Then turn right onto Sanatoga Road. Cross under the transmission lines and turn left onto Longview Road. Continue on Longview Road until you come to the information center on the left. To reach the Limerick site from Main Line and south take Pennsylvania State Highway 23 to Route 724, travel north and turn right onto Linfield Road. Cross the Schuylkill River and turn left onto Longview Road. Follow Longview Road until you come to the information center on the right.

The Limerick Generating Station, which is being built by the Philadelphia Electric Company, will have two boiling-water reactors, each with a capacity of more than 1 million kilowatts.

At the Limerick Atomic Information Center, which is at the construction site, there are exhibits that explain the beneficial uses of atomic energy, show how electricity is produced, illustrate man's ever growing need for energy, and provide descriptions of nuclear fission and controlled chain reactions. A scale model of the Limerick Generating Station and animated exhibits about the operation of a boiling-water reactor are also provided. Visitors may operate a Geiger counter at the radiation exhibit.

To arrange for group tours and special programs or to obtain additional information about the Limerick Generating Station and its information center, please contact:

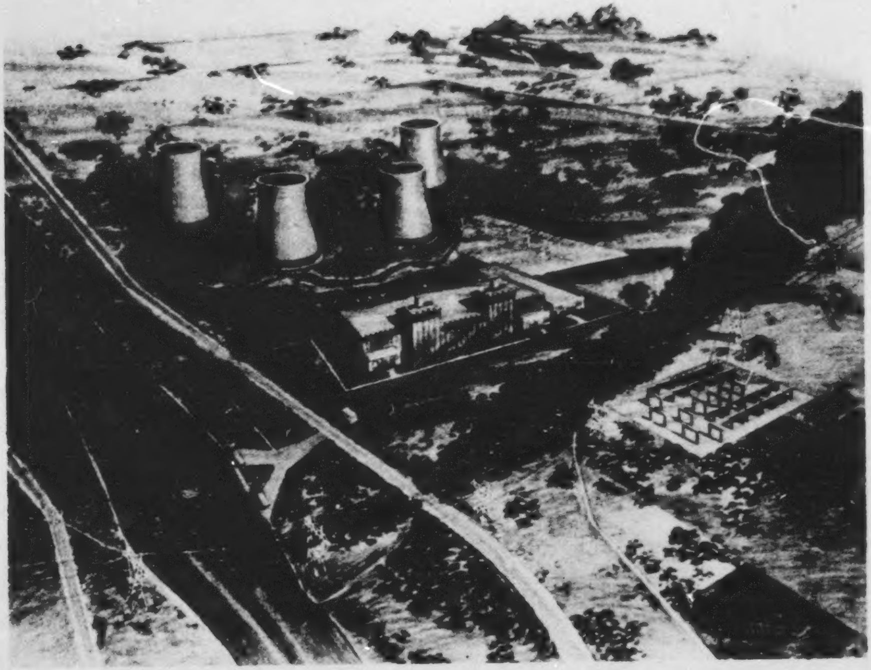
Philadelphia Electric Company
Limerick Atomic Information Center
298 Longview Road
Linfield, Pennsylvania 19468

Phone: (215) 495-6767

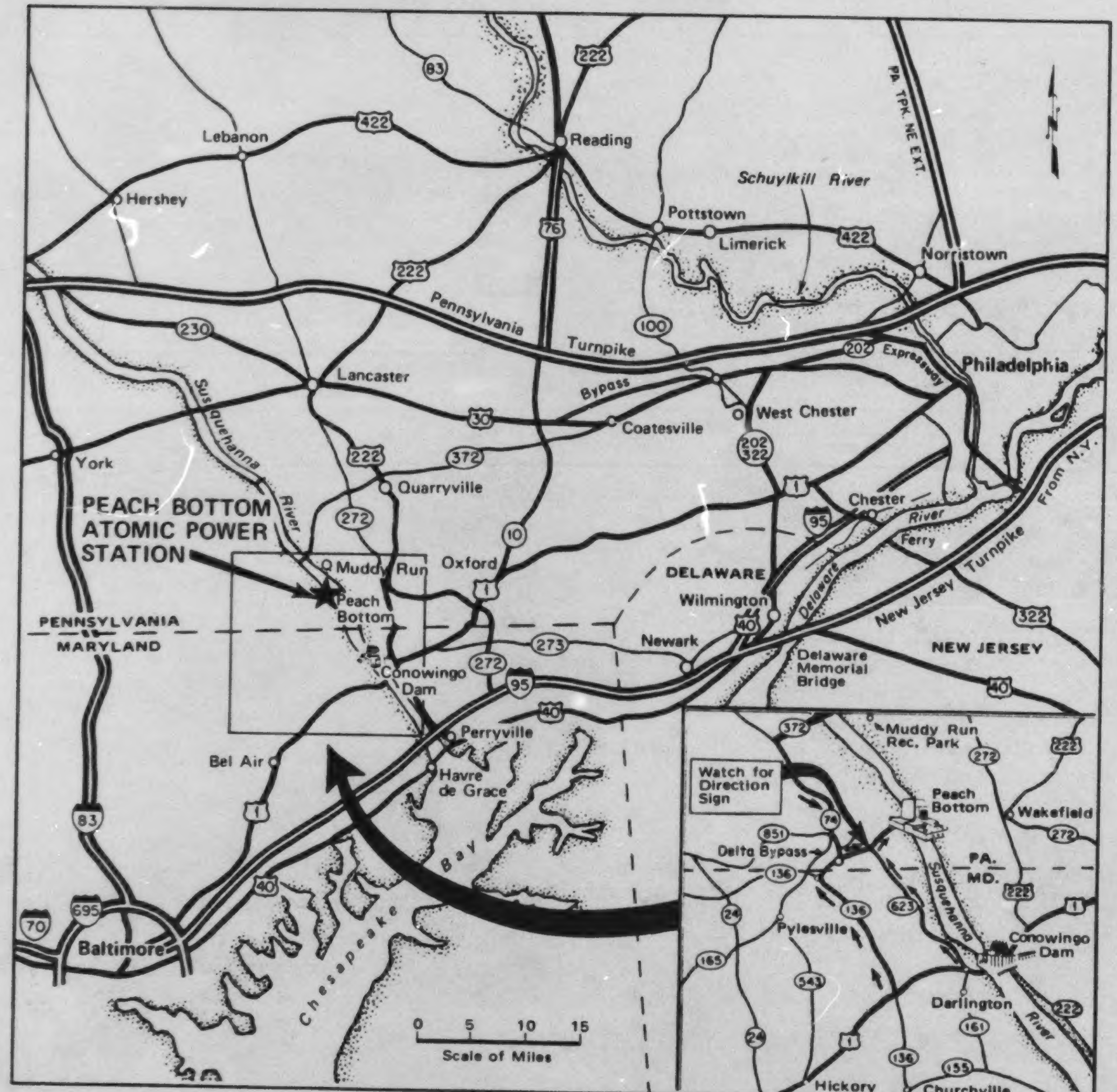
or

Philadelphia Electric Company
Community Relations Department
2301 Market Street
Philadelphia, Pennsylvania 19101

Phone: (215) 841-4308



An artist's concept of the Limerick Generating Station.


PEACH BOTTOM
ATOMIC POWER
STATION
Reading
Lebanon
Hershey
Pottstown
Limerick
Schuylkill River
Norristown
PA. TPK. NE EXT.
Pennsylvania Turnpike
Philadelphia
Expressway
Bypass
Lancaster
Coatesville
West Chester
York
Quarryville
Susquehanna River
Muddy Run
Peach Bottom
Oxford
DELAWARE
Wilmington
Chester
Delaware River
Ferry
New Jersey Turnpike
From N.Y.
NEW JERSEY
PENNSYLVANIA
MARYLAND
Conowingo Dam
Newark
Delaware Memorial Bridge
Perryville
Havre de Grace
Bel Air
Baltimore
Chesapeake Bay
0 5 10 15
Scale of Miles
83
222
422
76
100
202
230
30
372
272
10
1
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202 322
273
40
695
70
Muddy Run Rec. Park
Watch for Direction Sign
Peach Bottom
Wakefield
Delta Bypass
PA.
MD.
Pylesville
Susquehanna River
Conowingo Dam
Darlington
Hickory
Churchville
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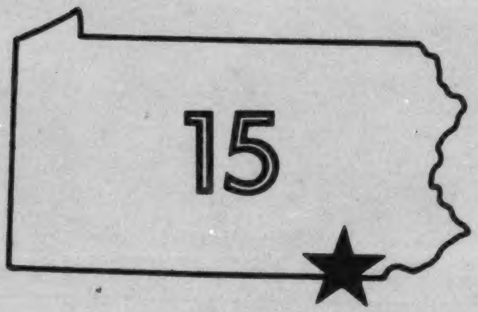
161
155

Pennsylvania

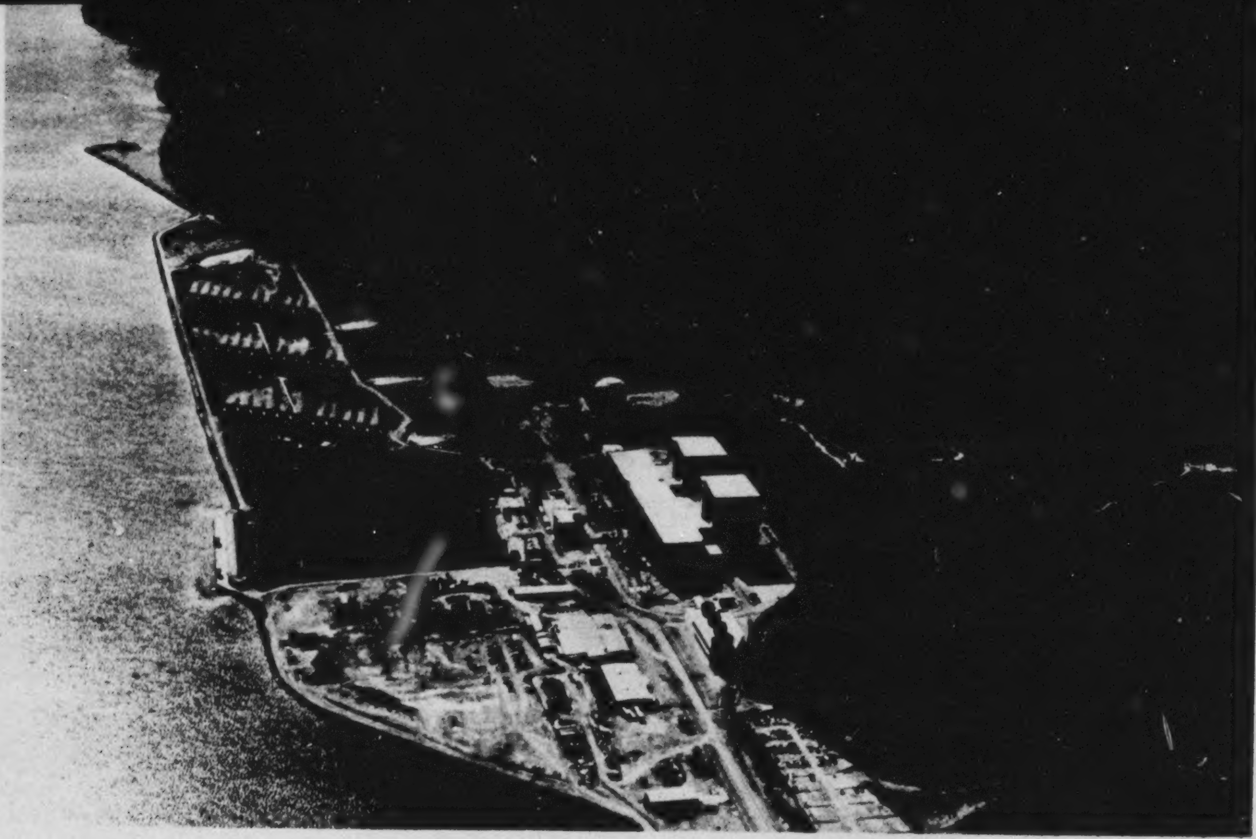


Peach Bottom Atomic Power Station
Delta, PA

Visiting Hours: The information center is open Wednesday through Sunday and holidays from 10:00 a.m. to 4:00 p.m. It is closed on Christmas and New Year's Day.

The Peach Bottom Atomic Power Station and Information Center are a short drive from Philadelphia, Baltimore, or Washington, D. C.

The Peach Bottom Atomic Power Station Unit 1, located on the Susquehanna River in southeastern Pennsylvania, was the first high-temperature, gas-cooled reactor in the United States. The station reached full power operation on May 25, 1967, and began commercial operation on June 1, 1967. This 40-megawatt prototype reactor operated successfully at full power from 1967 to 1974. After producing over 1.3 billion kilowatt-hours in commercial operation, the control rods were inserted to permanently shut down the reactor on October 31, 1974. Unit 1 had been designed to serve as a small-scale experimental station for the high-temperature



The Peach Bottom Atomic Power Station.

gas-cooled reactor principle, and by October 1974 it had fulfilled its purpose of providing reliable technical and cost data for application to larger HTGR plants. The Fort St. Vrain Nuclear Generating Station in Colorado is a direct result of the favorable operating experience gained from Peach Bottom.

The shutdown of Unit 1, however, did not mark the end of the Peach Bottom Atomic Power Station. Units 2 and 3, powered by boiling-water reactors with an electric capacity of 1,065,000 kilowatts went into commercial operation in 1974. With the commercial operation of these two units, the Peach Bottom Atomic Power Station has become one of the largest nuclear generating units in the world.

The information center, a bright airy building, stands on a hillside overlooking the power station. In the information center are exhibits that show how electricity is made, the ever-increasing demand for electricity, the story of the atom, nuclear fission, and the control of a chain reaction. Other displays include environmental exhibits and a three-dimensional scale model of the Peach Bottom high-temperature gas-cooled reactor. After a tour of the exhibit area, visitors may hear lectures and watch demonstrations and films in the auditorium.

Planned programs for groups can be scheduled in advance by mail or telephone. Evening programs may also be arranged. For additional information or to plan a group tour, please contact:

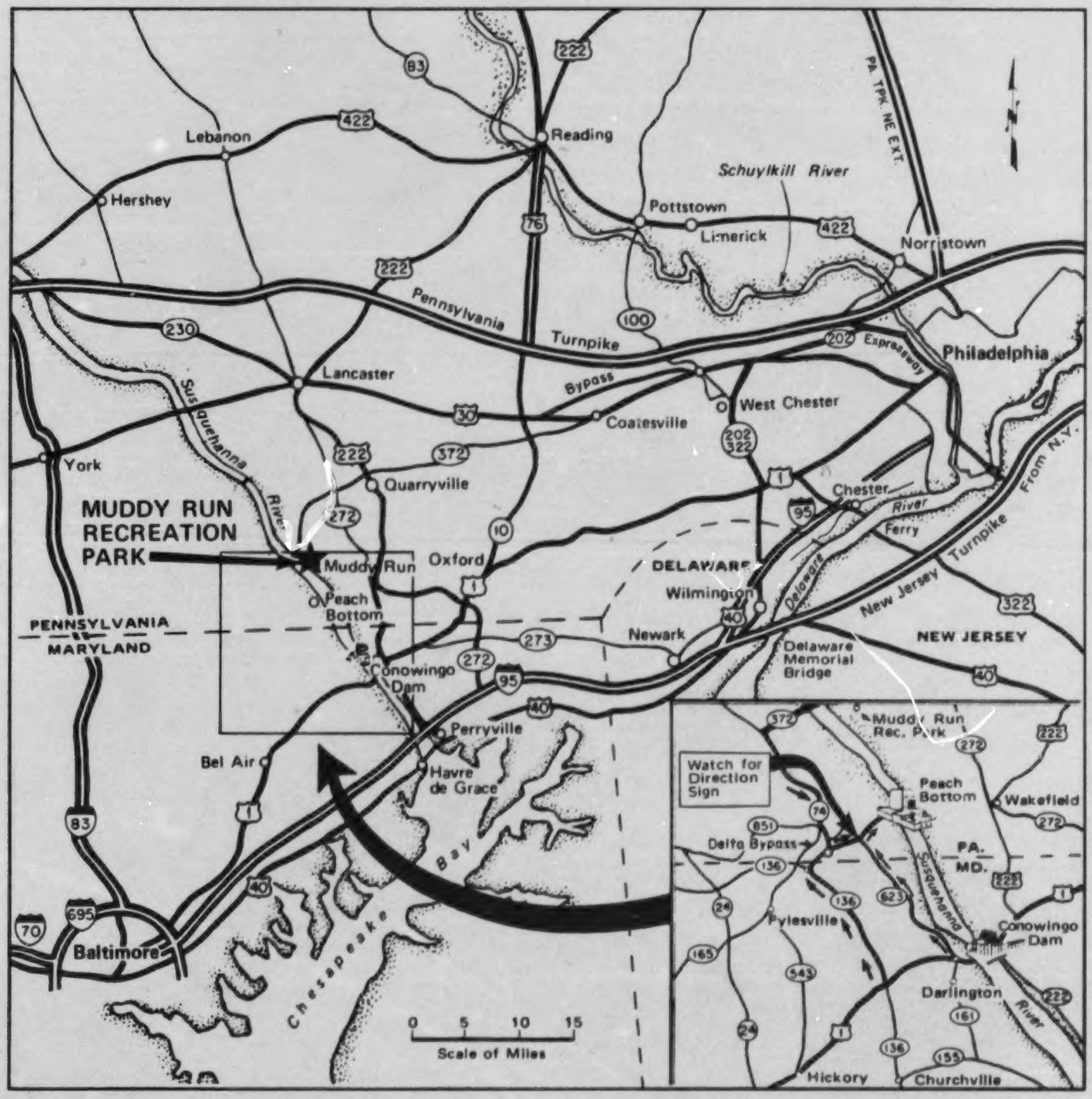
Philadelphia Electric Company
Atomic Information Center
Delta R. D. #1
Peach Bottom, Pennsylvania 17563

Phone: (717) 456-5101

or

Philadelphia Electric Company
Community Relations Department
2301 Market Street
Philadelphia, Pennsylvania 19101

Phone: (215) 841-4308


MUDDY RUN RECREATION PARK
Muddy Run
Peach Bottom
PENNSYLVANIA
MARYLAND
Lebanon
Hershey
Reading
Schuylkill River
PA TPK. NE EXT.
Pottstown
Limerick
Norristown
Pennsylvania Turnpike
Philadelphia
Expressway
Lancaster
Bypass
West Chester
Coatesville
York
Susquehanna River
Quarryville
Oxford
Chester
River
Ferry
DELAWARE
Wilmington
Delaware
New Jersey Turnpike
From N.Y.
Newark
Delaware Memorial Bridge
NEW JERSEY
Conowingo Dam
Perryville
Havre de Grace
Bel Air
Chesapeake Bay
Baltimore
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422
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272
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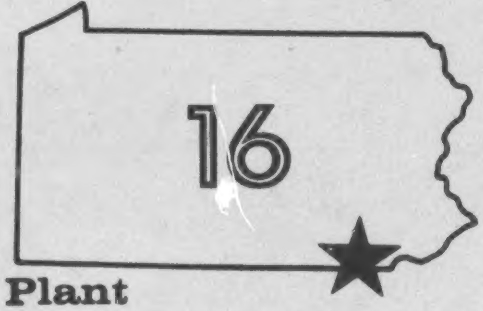
273
40
70
695
0 5 10 15
Scale of Miles
Muddy Run Rec. Park
Watch for Direction Sign
372
272
222
Peach Bottom
Wakefield
74
851
Delta Bypass
136
PA.
MD.
623
Susquehanna River
24
Pylesville
165
543
Conowingo Dam
Darlington
161
155
Hickory
Churchville



Muddy Run Pumped-Storage Hydroelectric Plant
Drumore, PA

Facilities: Muddy Run recreational park is an ideal place for family camping, fishing, boating, and picnicking. Facilities on this 100-acre lake include campsites, a picnic area, play areas, and boat rentals. The Muddy Run administration building also has a snack bar and a camping and fishing supply store for visitors.

A small stream, Muddy Run, joins the Susquehanna River between the towns of Martic and Drumore, 12 miles upriver from the Conowingo Hydroelectric Station. The Muddy Run Pumped-Storage Hydroelectric Plant is located on this site, which was the camping ground of the Susquesahanock tribe.

Pumped-storage requires a reservoir, or lake, above the powerhouse, from which water can be drawn to generate electric power at times of peak electricity demand, and into which water can be pumped at times of low demand. An upper reservoir was created about 400 feet above the Muddy Run powerhouse by the construction of a 4400-foot im-

The Muddy Run Pumped-Storage Hydroelectric Plant.

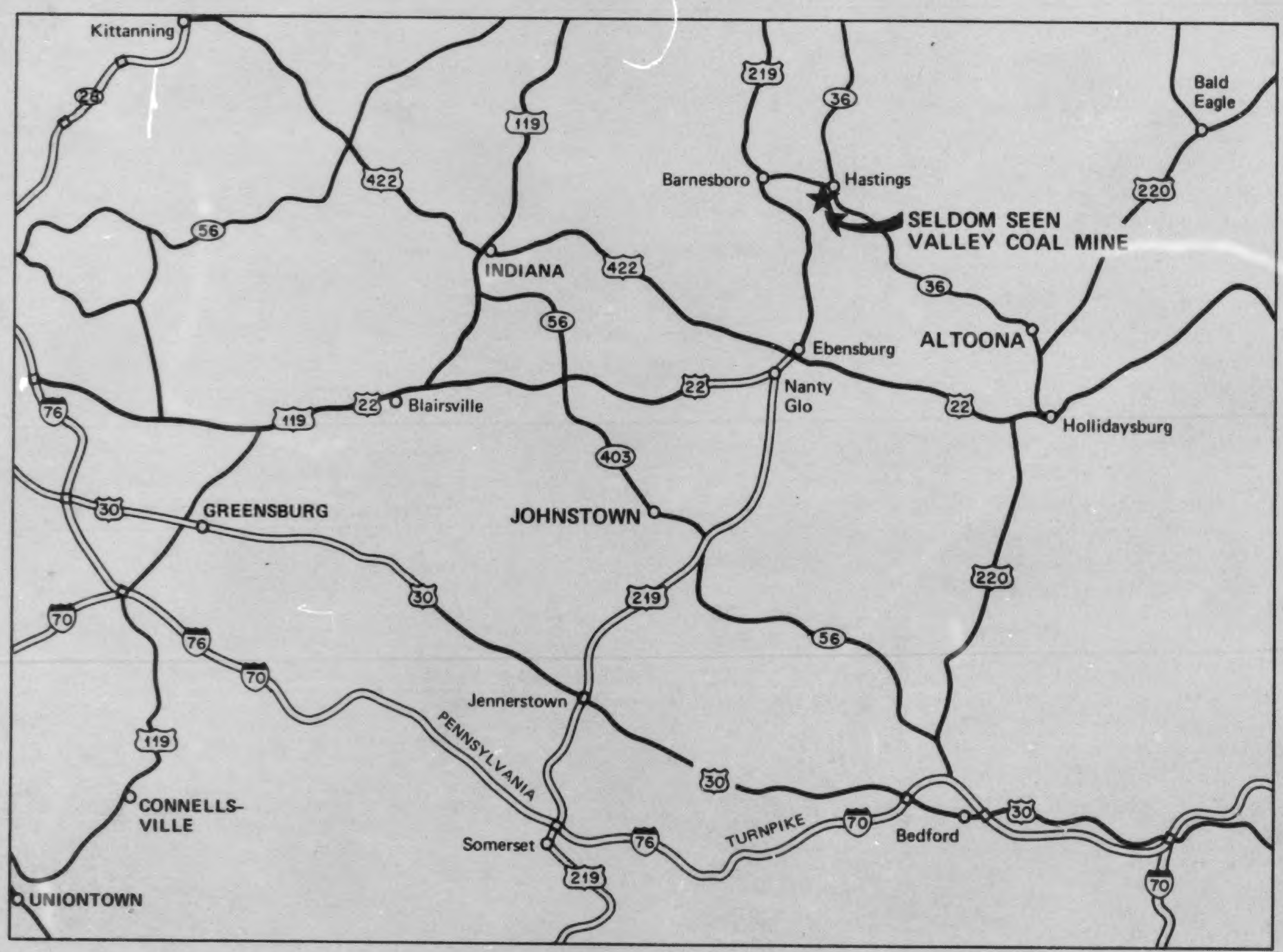
pounding dam across Muddy Run ravine. The Muddy Run Plant has eight 110,000-kilowatt reversible pump-turbine, motor-generator units. From the upper reservoir, a canal extends about 2300 feet to the intake structures and the Susquehanna River serves as the lower reservoir.

The Muddy Run Plant is operated in cooperation with the Conowingo Hydroelectric Station and is remotely controlled from Conowingo. The power generated at the Muddy Run Station is carried into the Philadelphia Electric Company grid. Because of the fluctuation in water level in the upper reservoir, a 100-acre constant-level recreational lake was developed by the Philadelphia Electric Company at the eastern end of the reservoir. The dam that formed the recreational lake was constructed at the same time as the main impounding dam for Muddy Run.

For additional information, please contact:

Philadelphia Electric Company
Community Relations Department
2301 Market Street
Philadelphia, Pennsylvania 19101

Phone: (215) 841-4308


Kittanning
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Bald Eagle
Barnesboro
Hastings
SELDOM SEEN VALLEY COAL MINE
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INDIANA
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ALTOONA
Ebensburg
Nanty Glo
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Blairsville
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Hollidaysburg
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GREENSBURG
JOHNSTOWN
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Jennerstown
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PENNSYLVANIA
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CONNELLS-VILLE
TURNPIKE
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Bedford
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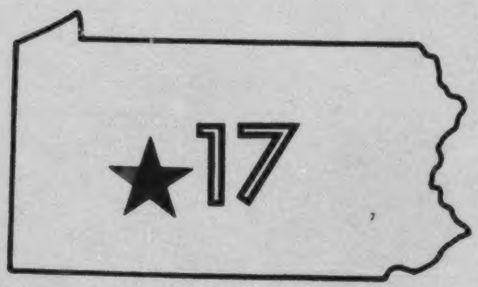
UNIONTOWN



Seldom Seen Valley Coal Mine
St. Boniface, PA

Visiting Hours: The mine is open daily from 9:00 a.m. to 8:00 p.m. from April 15 to Labor Day. It is open only on weekends from Labor Day to October 31.

The Seldom Seen Valley Coal Mine is located near St. Boniface on Route 36, north of Patton, in the heart of Pennyslvania's soft coal region. The visitor may ride 2200 feet into the Seldom Seen Valley Mine (miner's safety cap and all!) on an electric powered mine car, designed with a plastic roof for protection. Exhibits show how coal is removed, tunnels dusted to eliminate mining hazards, holes drilled for dynamite, and old and modern methods of cutting under a seam of coal. Visitors may also see a 250-million-year-old coal seam and learn about the formation and composition of coal. A museum at the main portal contains a fine collection of time-honored mining lamps and other coal-mining memorabilia.

Special group tours may be arranged by contacting the business office. For additional information about the Seldom Seen Valley Mine, please contact:

Seldom Seen Valley Coal Mine
St. Boniface, Pennsylvania 16675

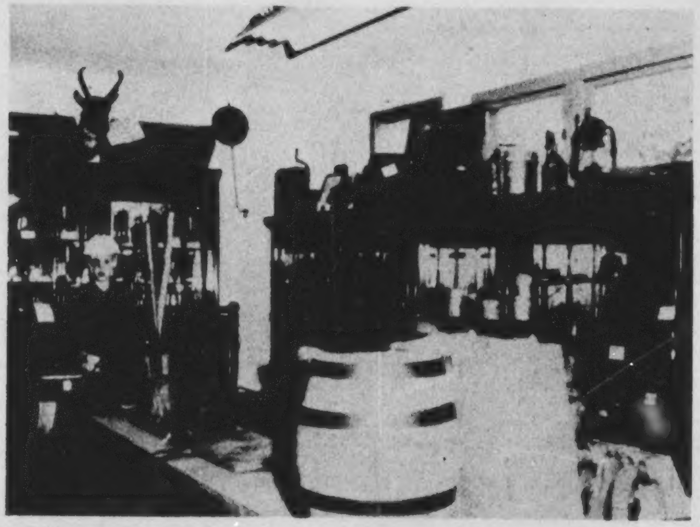
Phone: (814) 247-8511

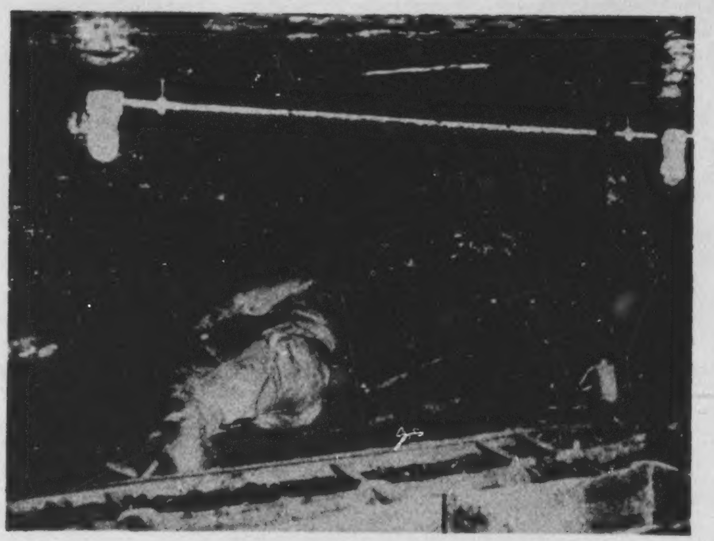
or

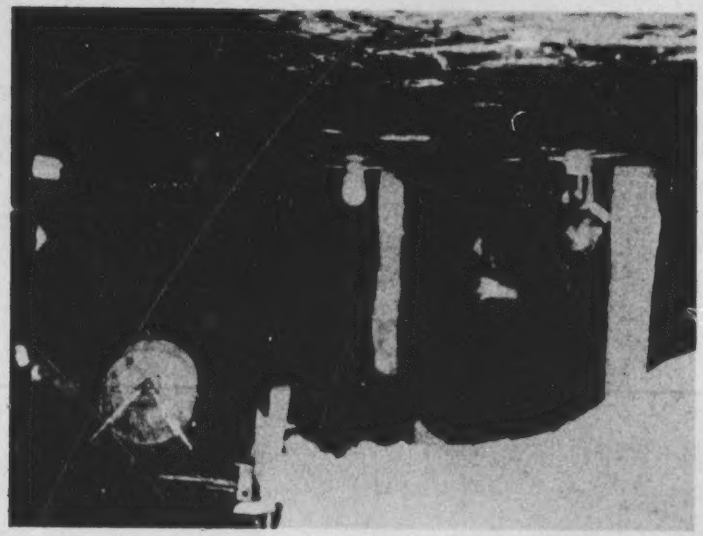
Seldom Seen Valley Coal Company
809 North Fifth Avenue
Patton, Pennsylvania 16668

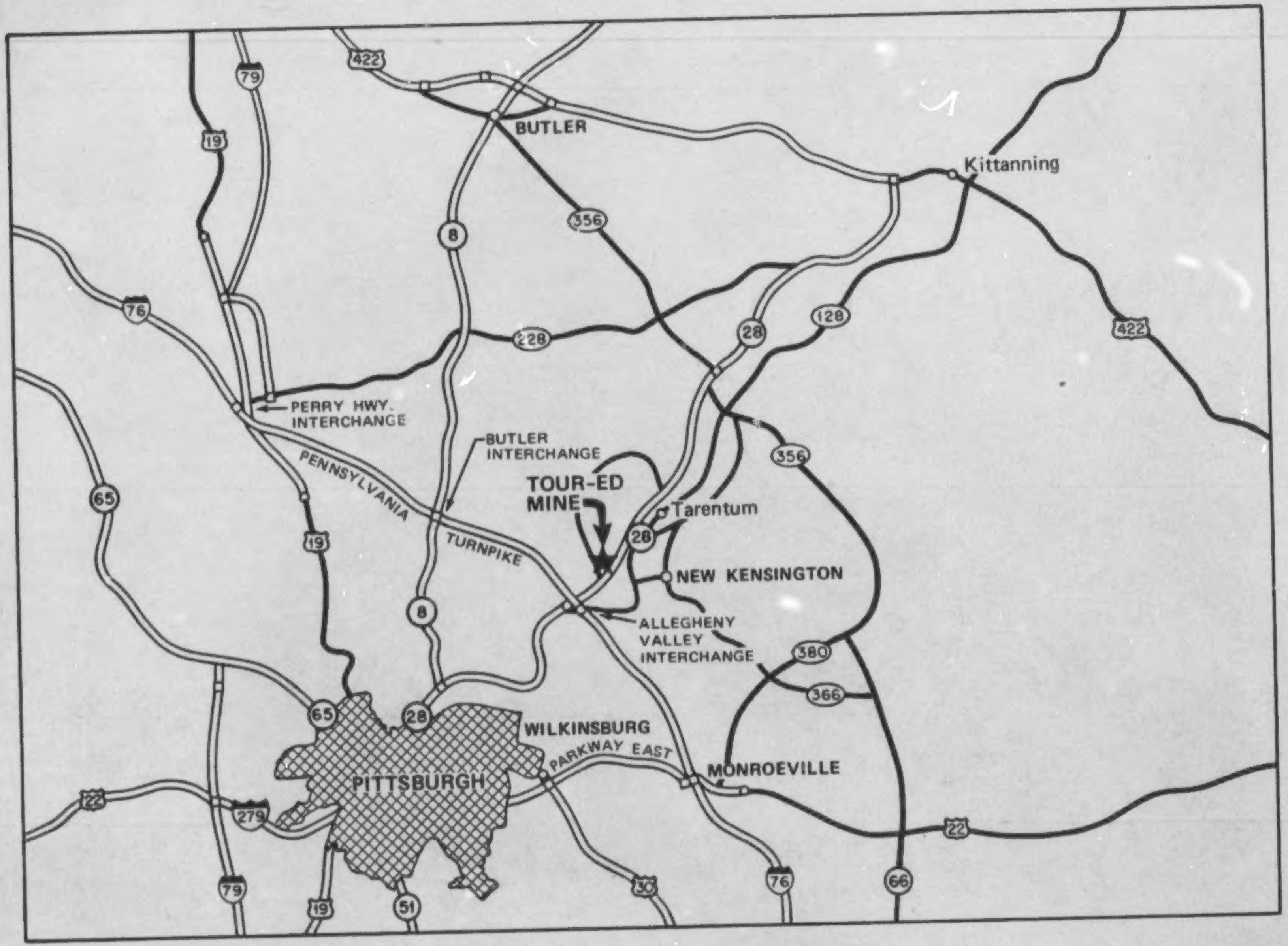
Phone (814) 674-5893

Exhibits at the Seldom Seen Valley Coal Mine.








422
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BUTLER
Kittanning
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76
228
28
128
422
PERRY HWY. INTERCHANGE
BUTLER INTERCHANGE
PENNSYLVANIA TURNPIKE
TOUR-ED MINE
Tarentum
356
65
19
28
NEW KENSINGTON
8
ALLEGHENY VALLEY INTERCHANGE
380
366
65
28
WILKINSBURG
PARKWAY EAST
MONROEVILLE
PITTSBURGH
22
279
22
79
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51
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76
66

Tour-Ed Mine
Tarentum, PA

Pennsylvania

Visiting Hours: The mine is open daily from 1:00 p.m. to 5:30 p.m. from Memorial Day to Labor Day. During May and September it is open *only* on Saturday and Sunday from 1:00 p.m. to 5:30 p.m.

Admission Fee: Children under 7 are admitted free; $1.00 for children 7-12; and $2.00 for adults.

The Tour-Ed Mine, an educational coal mine, is located 1 mile from Route 28 on Bull Creek Road near Tarentum, Pennsylvania.

Here the visitor may watch old and new methods in coal mining from a clean and safe vantage point by viewing display areas a half-mile underground, which show various machines and mining methods from the hand-mining techniques of the 1800s to today's continuous mining operations.

The Tour-Ed Mine display was created from a worked-out section of an operating coal mine. Visitors travel on a mine train through a portal, which is called a "drift entry", down an almost level grade about a half-mile into the mine. Here are several displays on coal mining techniques, such as a punching machine, a cutting machine, a shaker conveyor, a Joy loader, and a Joy continuous miner (which is a revolutionary modern development that eliminates drilling and blasting and combines cutting and blasting operations).

There is no admission fee for touring circa 1900 replicas of a company store, miner's room, barber shop, and blacksmith's shop. In addition, there are a 1795 log house, picnic shelters, and playground.

For additional information about the Tour-Ed Mine, please contact:

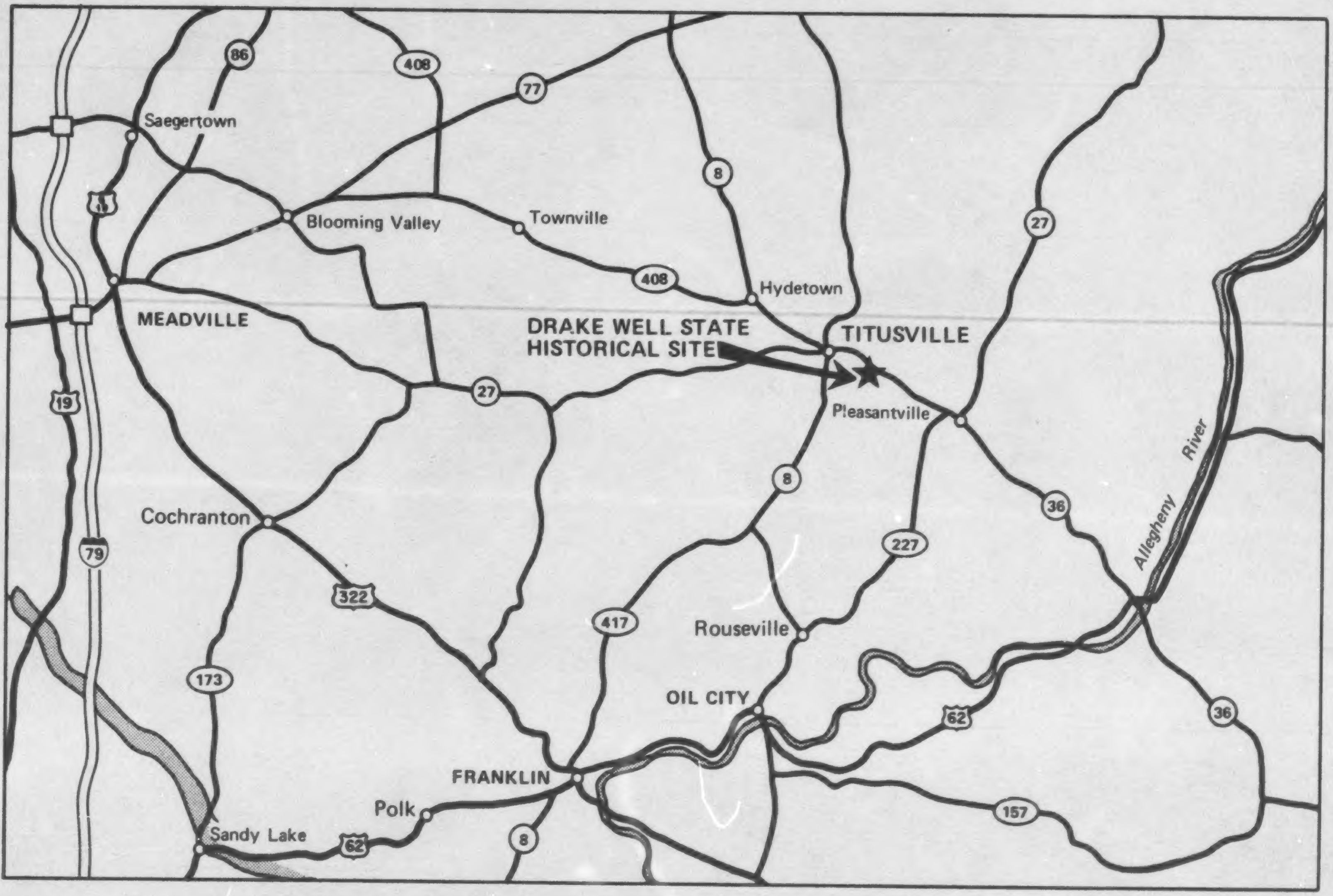
Tour-Ed Mine
R. D. 2
Tarentum, Pennsylvania 15084

Phone: (412) 224-4720

TOUR-ED MINE
EDUCATION IN MINING COAL

162

163


DRAKE WELL STATE HISTORICAL SITE
TITUSVILLE
Pleasantville
Hydetown
Townville
Blooming Valley
Saegertown
MEADVILLE
Cochranton
Rouseville
OIL CITY
FRANKLIN
Polk
Sandy Lake
Allegheny River
86
408
77
8
27
19
79
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173
417
227
36
62
157

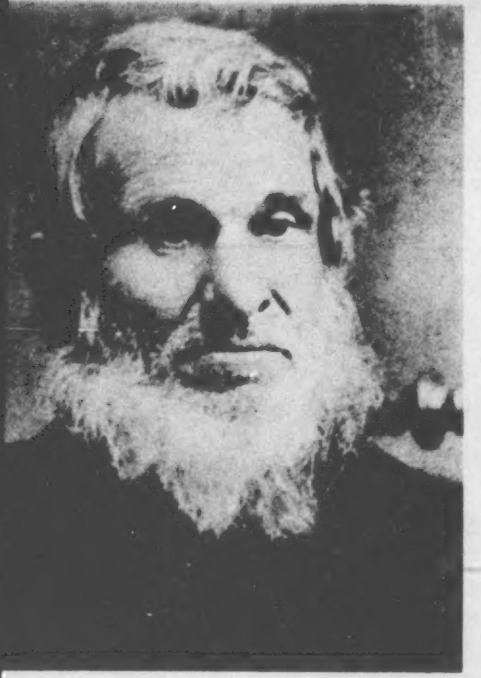
Pennsylvania

Drake Well Park and Museum
Titusville, PA

Visiting Hours: The park and museum are open Tuesday through Saturday from 10:30 a.m. to 4:30 p.m.; on Sundays from 1:00 p.m. to 4:30 p.m. They are closed on major holidays and election days.

Admission Fee: There is an admission charge of $0.50 for adults. Children and senior citizens are admitted free of charge.

The Drake Well, the world's first commercial oil well, was brought in on August 27, 1859. Today, an operating replica of Drake's derrick and enginehouse, an extensive museum, and a historic park with picnic area mark the site of this oil well. The Drake Well Park and Museum are located about 1 mile southeast of Titusville, off route 8. The museum contains numerous exhibits, working models, dioramas, an electric map, and complete audiovisual facilities along with



W. A. "Uncle Billy" Smith.

an excellent research library devoted to the beginnings of the oil industry.

Late in 1857, Edwin L. Drake, an out-of-work railroad clerk, was hired to inspect the famous oil springs near Titusville by a group of New York investors. His favorable report and enthusiasm eventually led to the formation of the Seneca Oil Company, which hired Drake as its general agent, and sent him back to Titusville in the spring of 1858. Although he started by digging a well, he quickly realized that he would have to drill a hole into the oil-producing rock beside Oil Creek. He hired a blacksmith from the Pittsburgh area, Uncle Billy Smith, to direct the drilling operations after Drake had acquired an engine and erected an enginehouse and derrick. Uncle Billy had some experience in drilling salt wells and made the required tools for the project.

As drilling began, they found that their hole filled with water as fast as they could clear it out, so they resorted to driving a pipe into the ground and drilling inside this pipe. This technique had been developed by the salt well drillers and is still used today. Drake faced many problems in getting started and it was not until the summer of 1859 that they began to drill in earnest.

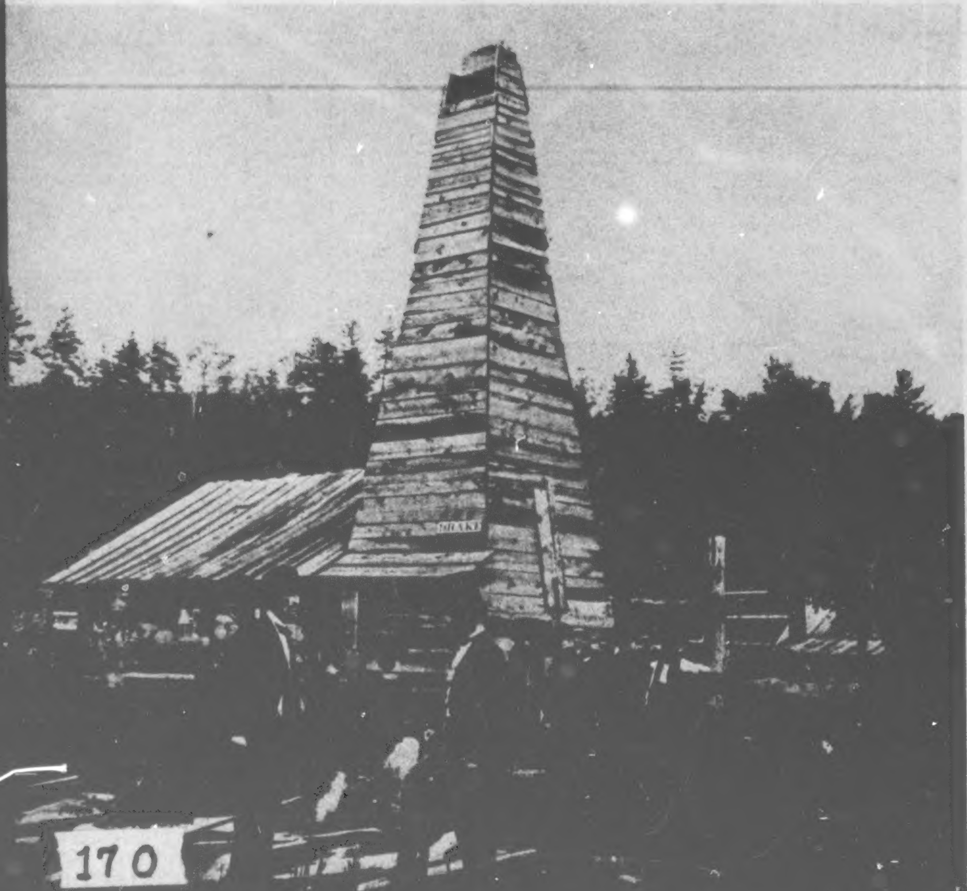
After a few weeks of drilling, the drill bit stuck in a crevice and work stopped for the day. The next morning, August 27, Uncle Billy looked into the drilled hole and saw oil floating on top of the water. He sent for Drake and word quickly passed through the small community of Titusville. When Drake arrived, they rigged up a common water pump and began to pump out the oil, getting about 20 barrels a day.

Drake's success led to others quickly trying their hand at drilling for oil and within a few months hundreds of wells were being drilled. As the Nation entered the Civil War, the petroleum industry was born, developed, and became a major part of the American experience as it spread out from the 69½-foot well drilled by Drake in 1859.

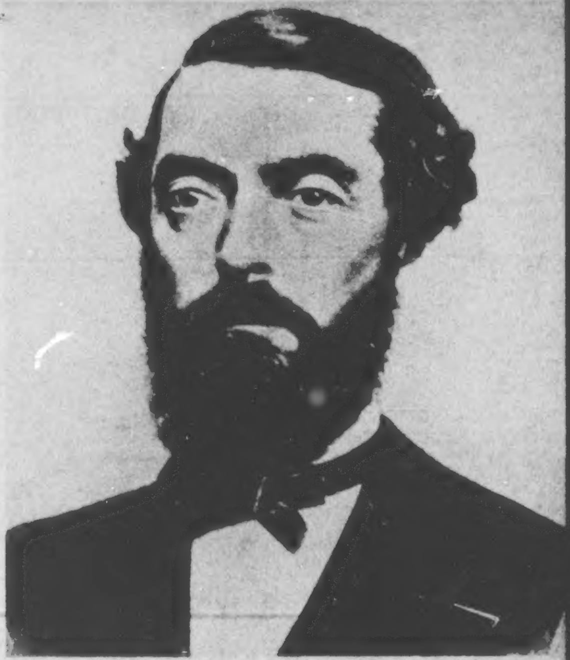
For further information about the Drake Well Park and Museum, please contact:

Drake Well Museum
R. D. 3
Titusville, Pennsylvania 16354

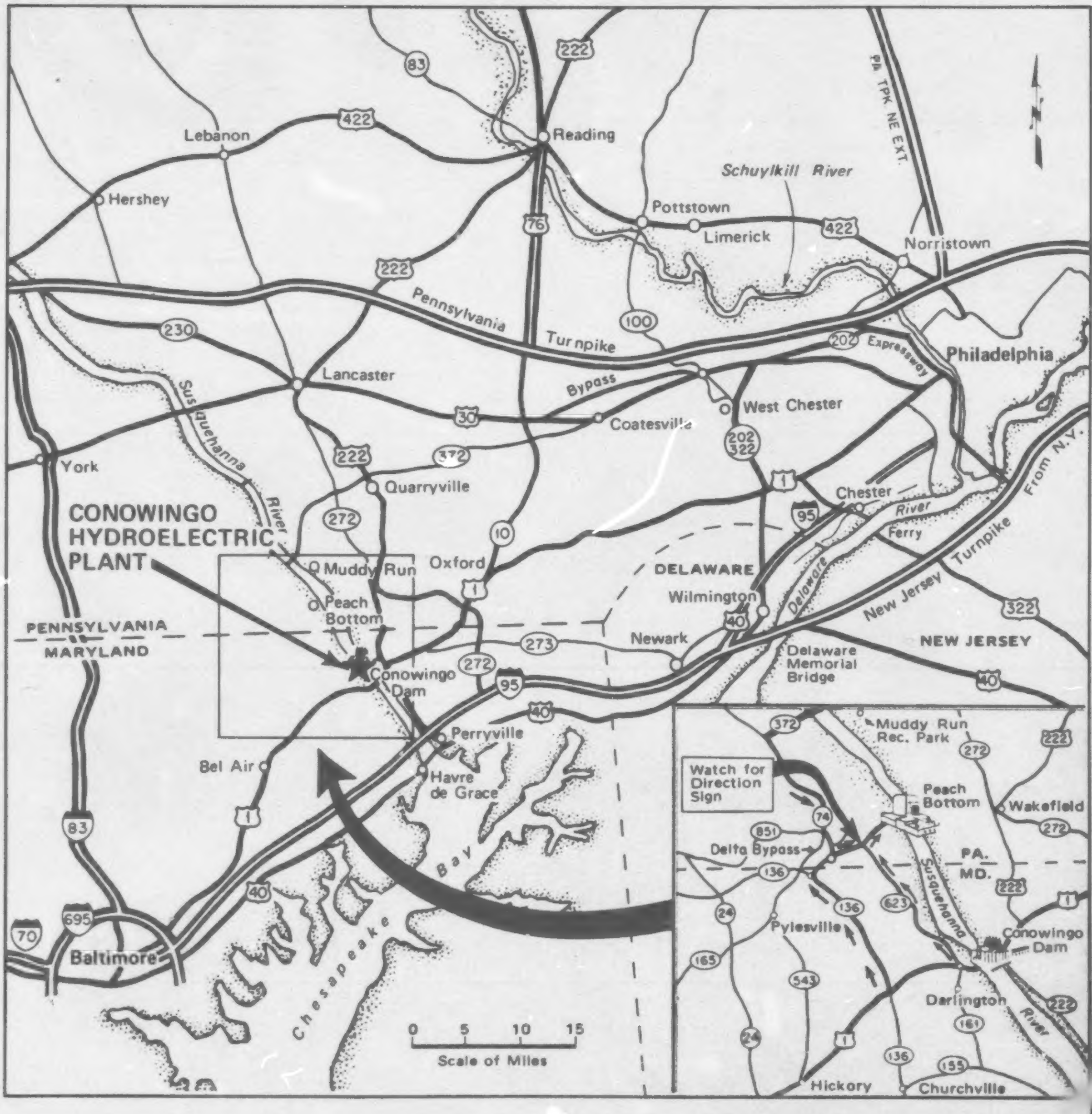
Phone: (814) 827-2797



In this 1861 photograph, Edwin L. Drake (top hat and beard) and Peter Wilson, a Titusville druggist who encouraged Drake in this venture, stand next to the world's first commercial oil well.



Edwin L. Drake.


CONOWINGO
HYDROELECTRIC
PLANT
Reading
Lebanon
Hershey
Pottstown
Limerick
Norristown
Schuylkill River
PA TPK NE EXT.
Pennsylvania Turnpike
Philadelphia
Expressway
Lancaster
Bypass
Coatesville
West Chester
York
Susquehanna River
Quarryville
Chester
River
Ferry
Muddy Run
Oxford
Peach Bottom
DELAWARE
Wilmington
Delaware
New Jersey Turnpike
From N.Y.
PENNSYLVANIA
MARYLAND
Newark
NEW JERSEY
Delaware Memorial Bridge
Conowingo Dam
Perryville
Havre de Grace
Bel Air
Baltimore
Chesapeake Bay
0 5 10 15
Scale of Miles
83
222
422
76
230
100
202
30
372
322
272
10
1
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40
273
695
70
Watch for Direction Sign
Muddy Run Rec. Park
Peach Bottom
Wakefield
Delta Bypass
PA.
MD.
Susquehanna River
Pylesville
Conowingo Dam
Darlington
Hickory
Churchville
74
851
136
24
165
543
623
161
155

Maryland

Conowingo Hydroelectric Station
(Near) Conowingo, MD

Facilities: Recreational use of the Conowingo reservoir has been encouraged since the Conowingo Hydroelectric Plant was completed in 1928. There are four marinas and several boat launching sites on the reservoir or "Conowingo Pond" as it is frequently called. In addition, more than 600 cottage sites on the land surrounding the reservoir are leased from the Philadelphia Electric Company. At the Conowingo Dam itself, visitors may fish either from boats or from the platform that extends the entire length of the downstream side of the powerhouse. Below the dam on the western bank of the Susquehanna is a hexagonally shaped, split-level sheltering pavilion. This pavilion, open on the river side, has benches and tables, sinks, vending machines, and work counters with outlets for electrical appliances. Infrared heating units warm the area in winter. A fish-cleaning shed and lighted parking lot for 260 cars are also provided for visitors.

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When the Conowingo Hydroelectric Plant was constructed in March 1926 for the Philadelphia Electric Company, it was the largest plant, steam or hydroelectric, ever constructed in one step in the history of the electric power industry. Today, it still remains one of the Nation's largest single hydroelectric installations with a total plant capacity of 512,000 kilowatts. The Conowingo Dam itself is 4648 feet long and creates a lake of about 14 square miles above the dam. The Conowingo project provides the Philadelphia Electric Company with an excellent source of reserve electric capacity, since its hydropower can be placed into operation in just a few minutes and shut down just as quickly when the need for peak power has passed.

Long before the arrival of European explorers, the Susquesahanock Indians, members of the Iroquois Tribe, and the Massawomek Indians, members of the Mohawk Tribe, followed the course of the Susquehanna to the ocean, and established fishing sites and trading centers along its route. Coastal Indians of the Algonquin Nation, such as the Delawares, attached great importance to the lower Susquehanna, for it was here that they skirted the great Chesapeake Bay in their journeys north and south. This area was known to the Indians as "Conewago" or "Conowingo", which, in the language of the Susquesahanocks, means "at the rapids".

Consequently, the lower Susquehanna River Valley was already a focal point of human activity when it was "discovered" by Captain John Smith in 1608. This was the same Captain Smith who, in the previous year, had founded the first permanent English settlement in North America at Jamestown. Captain Smith made two exploratory voyages to the head of Chesapeake Bay. On one of these voyages he traveled up the Susquehanna River to within a few miles of where the Conowingo Dam stands today. Further exploration was prevented by the shallow water at the rapids near Deer Creek, which made passage of Smith's ship beyond this point impossible. These tumbling waters are still known as Smith's Falls.

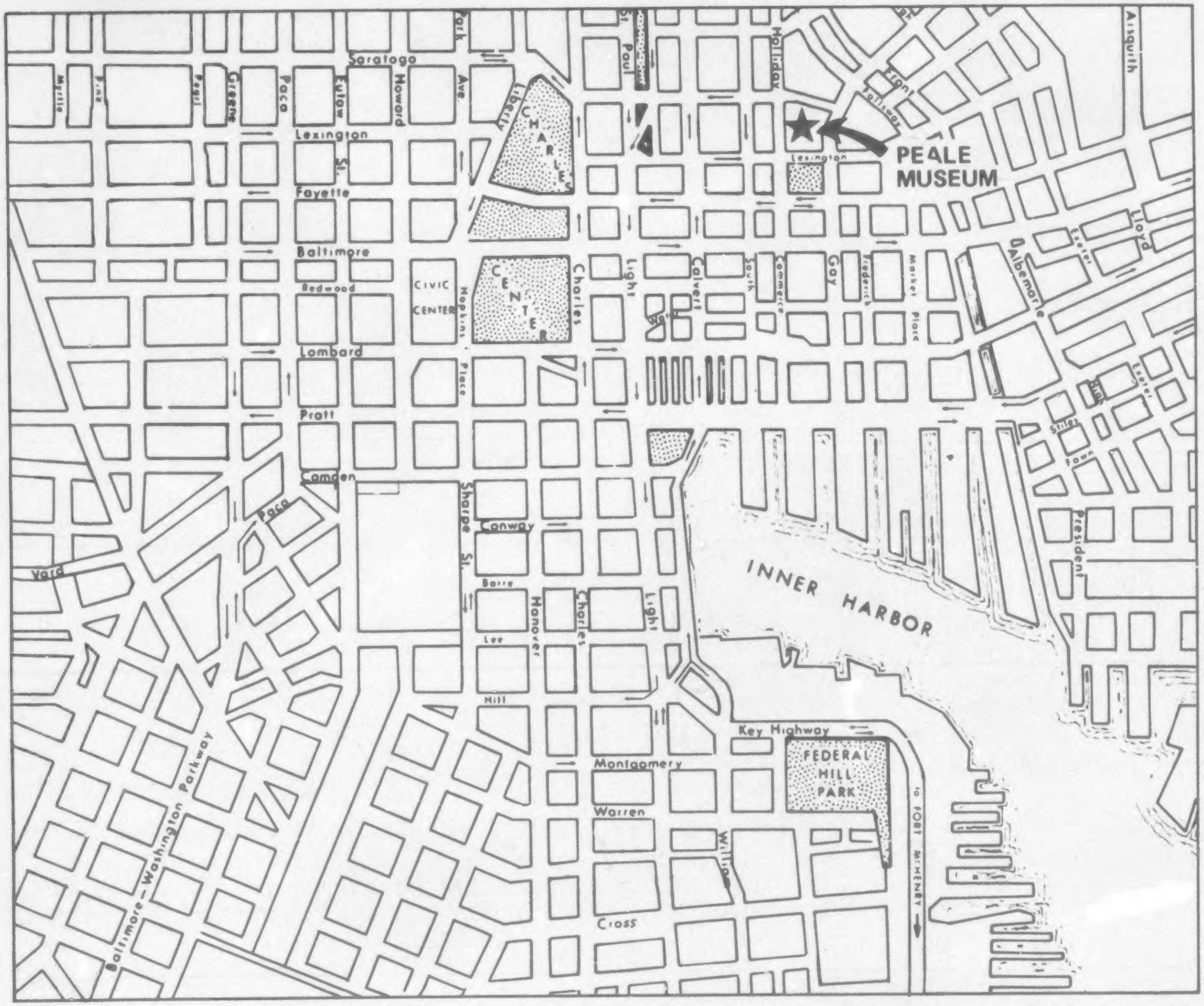
The Susquehanna River Valley proved its value as an artery for travel for these explorers, as it had for the Indians. During the Revolutionary War, troops and supplies were shuttled around the head of Chesapeake Bay, as the weight of battle shifted from north to south. For example, the Marquis de Lafayette paused in this valley on his way to the Battle of Yorktown. He camped near Rising Sun, Maryland, where a giant tree called Richard's Oak still stands. This ancient member of the forest was old even in the days of the Revolution and may have provided shade to Lafayette as he rested on his way to victory.

For additional information, please contact:

Philadelphia Electric Company
Community Relations Department
2301 Market Street
Philadelphia, Pennsylvania 19101

Phone: (215) 841-4308

The Conowingo Hydroelectric Station.


PEALE MUSEUM
CHARLES
CENTER
CIVIC CENTER
INNER HARBOR
FEDERAL HILL PARK
Saratoga
Lexington
Fayette
Baltimore
Redwood
Lombard
Pratt
Camden
Conway
Barre
Lee
Hill
Key Highway
Montgomery
Warren
Cross
Park Ave.
Liberty
St. Paul
Holliday
Front
Asquith
Lloyd
Albemarle
Exeter
President
Gay
Calvert
Light
Charles
Hanover
Sharpe St.
Hopkins Place
Howard
Eutaw
Paca
Greene
Pearl
Pine
Myrtle
Commerce
South
Frederick
Market Place
Water
Stiles
Fawn
Williams
Vard
Baltimore-Washington Parkway
to FORT McHENRY

Maryland

Peale Museum*
Baltimore, MD

Visiting Hours: The museum is open Tuesday through Friday from 10:30 a.m. to 4:30 p.m., and on Saturday and Sunday from 1:00 p.m. to 5:00 p.m. It is closed on Monday, New Year's Day, Easter, Memorial Day, July 4, Labor Day, Thanksgiving, and Christmas.

When Rembrandt Peale, a young Philadelphia portrait painter, came to the city of Baltimore in 1814, he opened a museum on Holliday Street, which was the center of social life at the time. Although art was featured in Peale's museum, natural history specimens and mineral collections were also on display. Today, little of the building has changed from Peale's time. It is the oldest museum in the United States and one of the oldest in the world.

In 1816 Rembrandt Peale made history by demonstrating a practical method of using gas illumination. He made the gas on the museum premises by using an apparatus he had designed and built. Peale's museum became the first building

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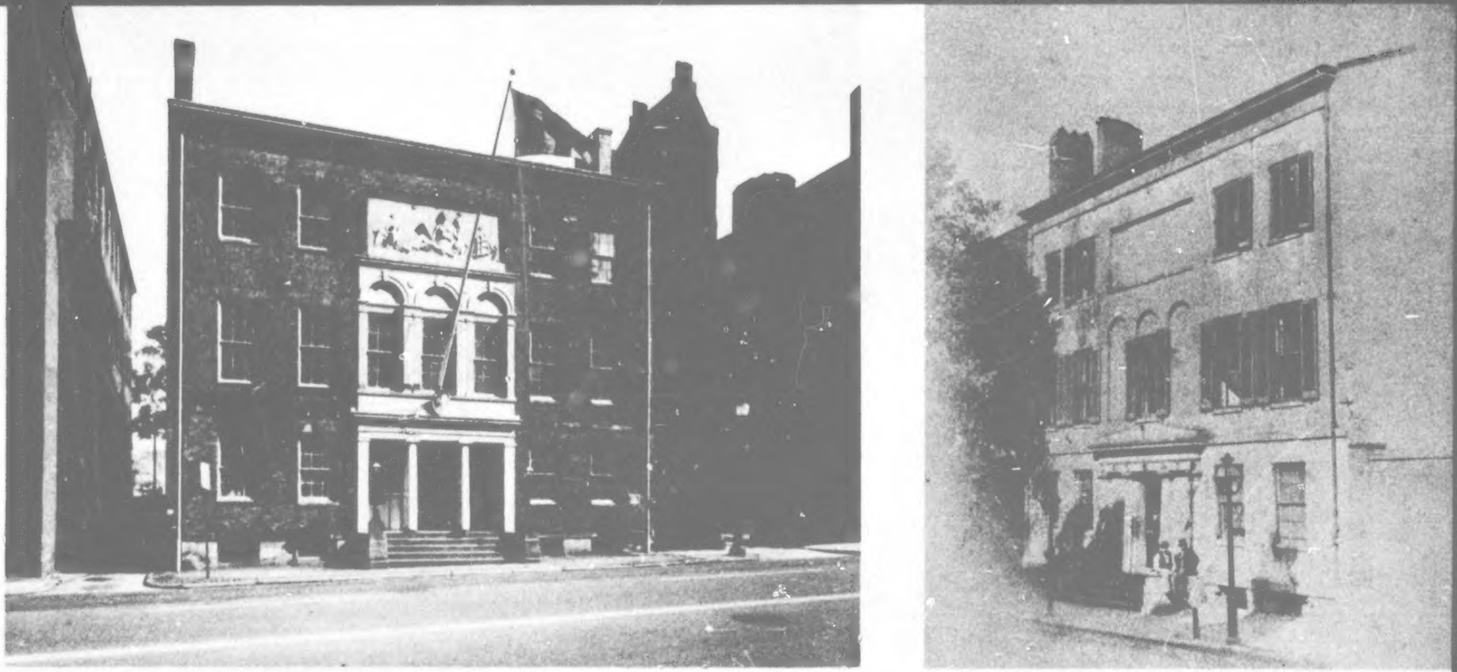
*A National Historic Landmark.



Above, left, is the Peale Museum as it appears today. On the right is a photograph of the museum in 1877.

in Baltimore to be lighted with gas. Gas lighting created a sensation and Peale, with several prominent Baltimoreans, formed the Gas Light Company of Baltimore. This was the first such company in the United States and the ancestor of the American gas industry. Baltimore was the first city outside of England and only the third in the world to have gas lights.

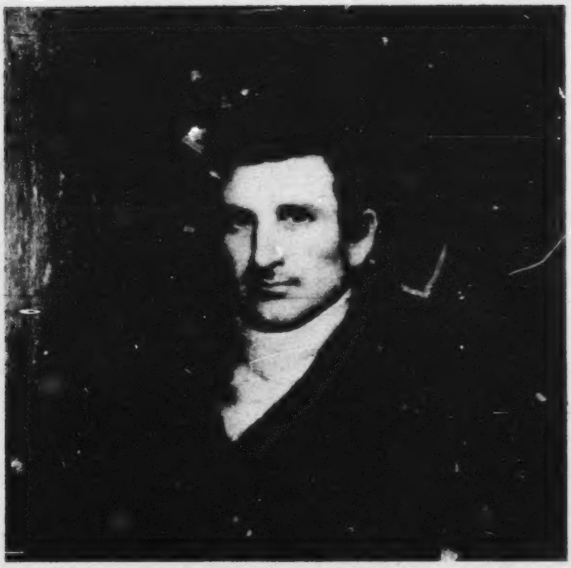
Peale's museum, however, was not a financial success and the gas company that he founded did not pay dividends. After 1830 the museum building was Baltimore's first city hall, a primary school, a City Water Department building, and was even rented as a factory. Finally, in 1928 the building was saved from demolition when the City of Baltimore acted to preserve and renovate it for use once again as a public museum.

This new museum preserves Peale's historical building and serves as a museum of the history of Baltimore. Among the many exhibits is the James Carey III Room, which traces the history of the museum and includes, among mementos from the old museum, a model of Rembrandt Peale's gas-making equipment.

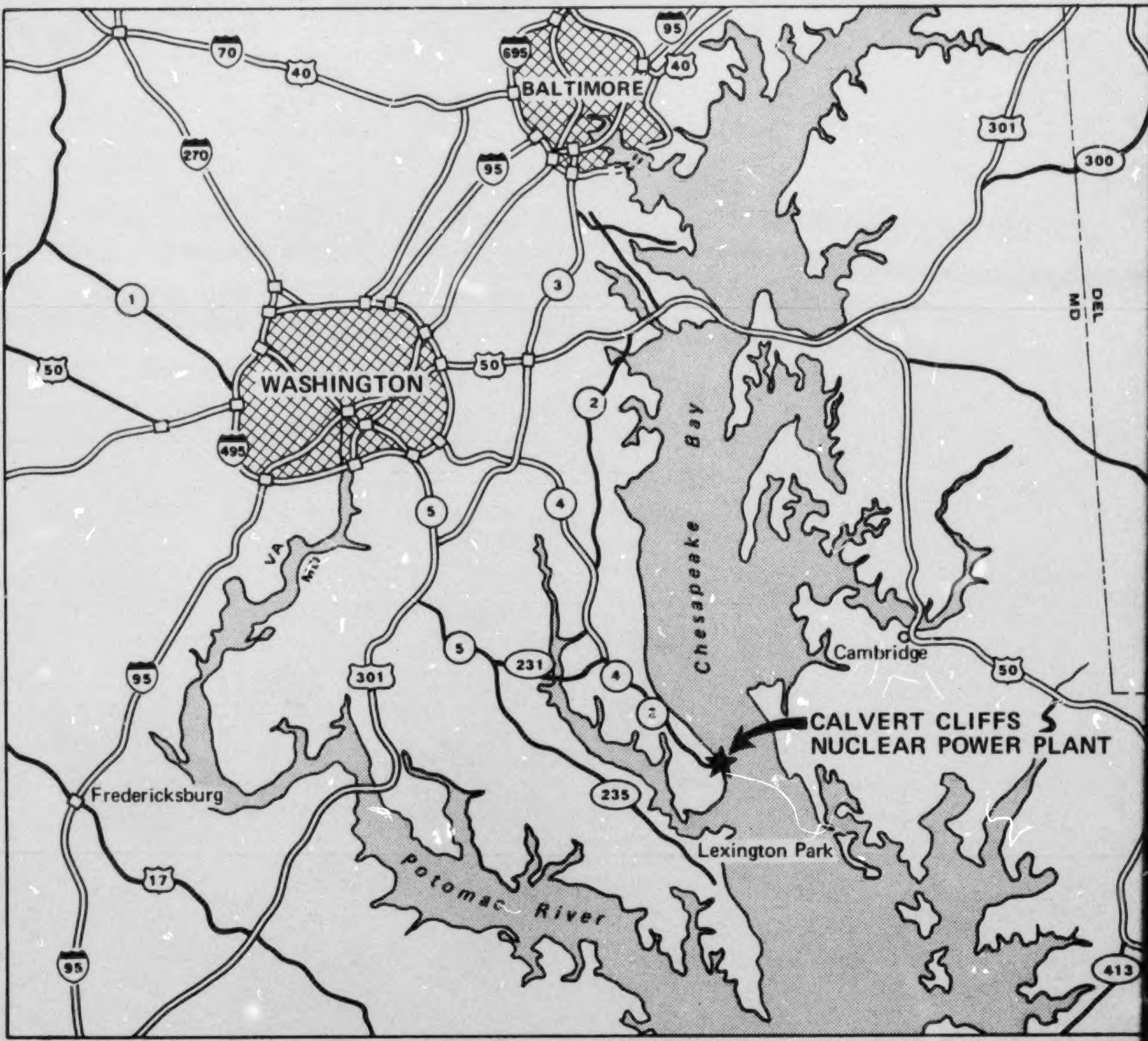
For additional information, please contact:

Director, Peale Museum
225 Holliday Street
Baltimore, Maryland 21202

Phone: (301) 396-3523



A self-portrait of Rembrandt Peale.


BALTIMORE
WASHINGTON
Chesapeake Bay
Potomac River
CALVERT CLIFFS
NUCLEAR POWER PLANT
Cambridge
Lexington Park
Fredericksburg
VA
MD
DEL
MD
95
695
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301
300
3
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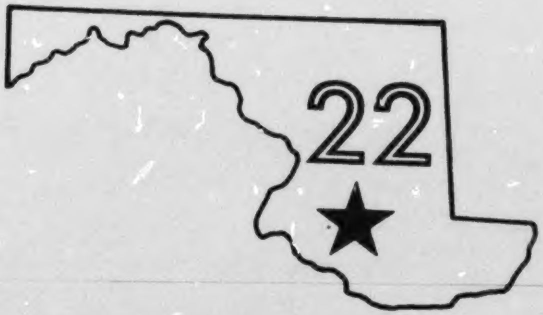
Calvert Cliffs Nuclear Power Plant

Lusby, MD

Maryland



Visiting Hours: The visitors' center is open Monday through Friday from 10:00 a.m. to 3:00 p.m., and on Saturdays, Sundays, and holidays from 10:00 a.m. to 6:00 p.m. ***There is no public access to the plant or the beach.***

The Calvert Cliffs Nuclear Power Plant Unit 1 has a pressurized-water reactor and a net electric capacity of 800,000 kilowatts. Unit 2, which will have a pressurized-water reactor of the same capacity, is scheduled to begin operation in 1977.

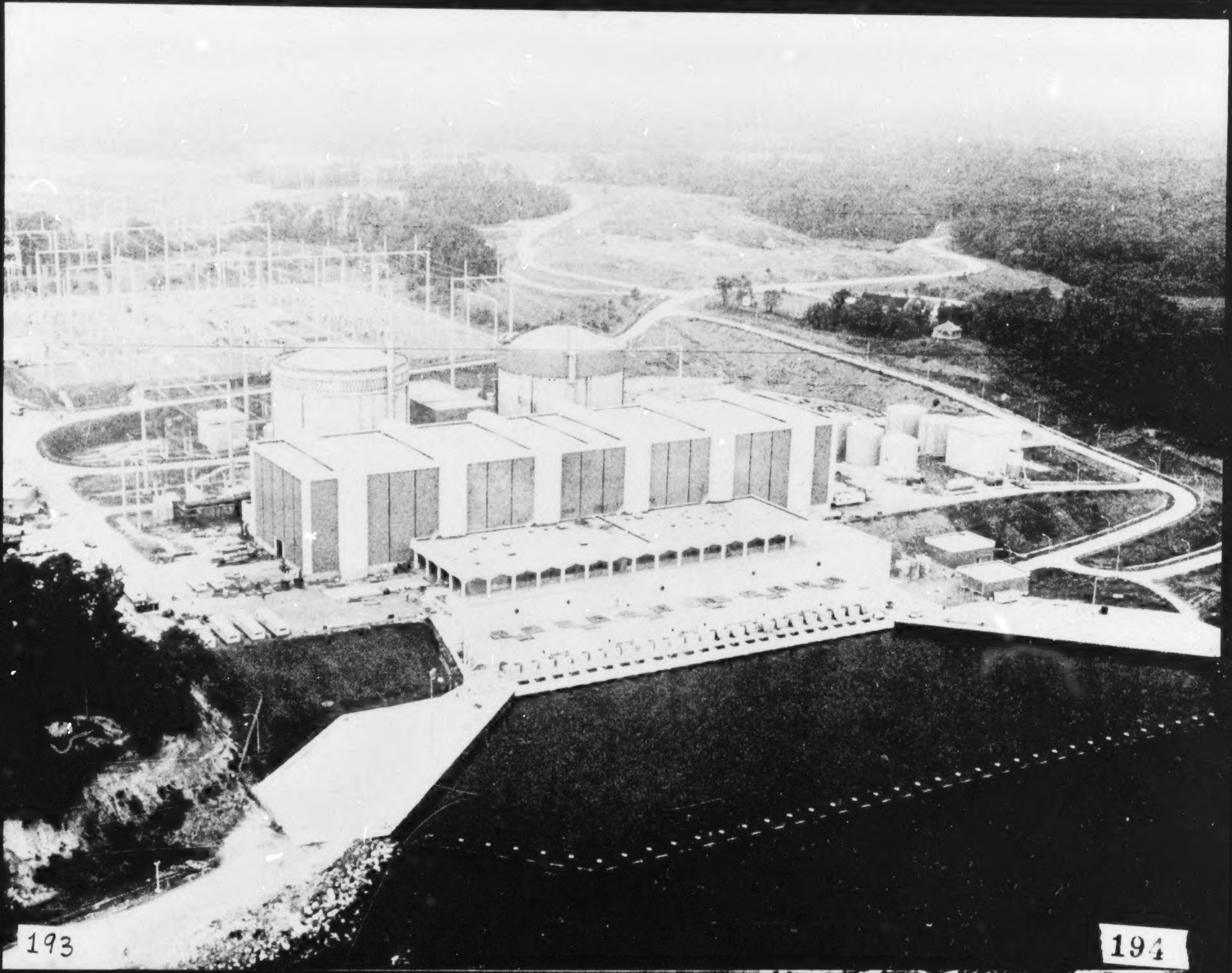
As part of the environmental planning for the site, most of the land will be left as it was when purchased. The generating plant itself occupies only a small portion of the 1135-acre tract owned by the Baltimore Gas and Electric Company. Crops of tobacco, corn, and soybeans are being raised as they have been for many years. Extensive wooded areas have been left in their natural state to provide food and protection for the deer, birds, and other wildlife in the area.

For additional information, please contact:

Public Relations
Baltimore Gas and Electric Company
Gas and Electric Building
Baltimore, Maryland 21203

Phone: (301) 234-7434

The Calvert Cliffs Nuclear Power Plant.



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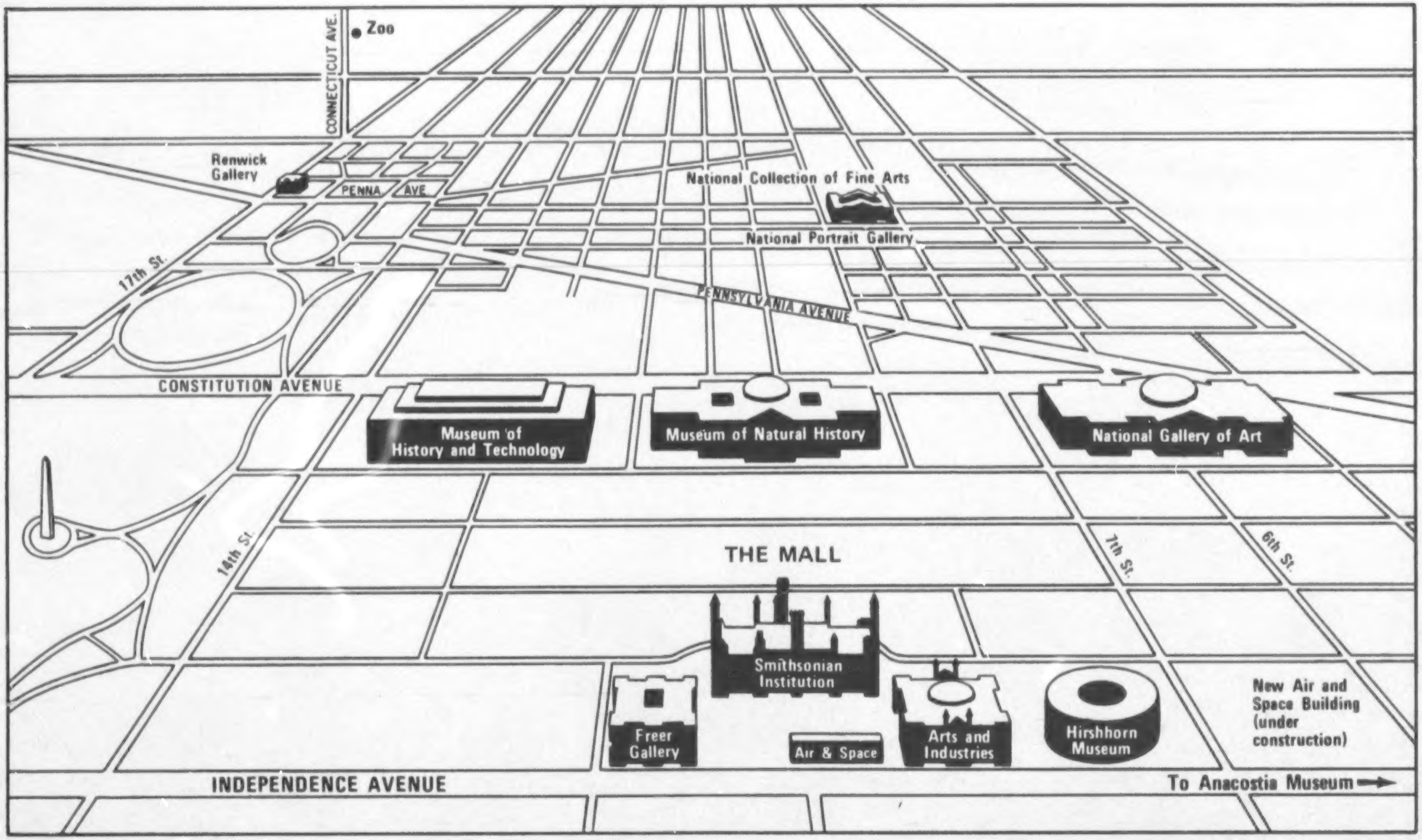
Zoo
CONNECTICUT AVE.
Renwick Gallery
PENNA AVE
National Collection of Fine Arts
National Portrait Gallery
17th St.
PENNSYLVANIA AVENUE
CONSTITUTION AVENUE
Museum of History and Technology
Museum of Natural History
National Gallery of Art
14th St.
THE MALL
7th St.
6th St.
Smithsonian Institution
Freer Gallery
Air & Space
Arts and Industries
Hirshhorn Museum
New Air and Space Building (under construction)
INDEPENDENCE AVENUE
To Anacostia Museum →

District of Columbia

National Museum of History and Technology
Washington, DC

Visiting Hours: The museum is open daily from 10:00 a.m. to 5:30 p.m. except Christmas. (The museum will be open daily from 10:00 a.m. to 9:00 p.m. between April 1, 1976 and September 6, 1976.)

The Smithsonian Institution's National Museum of History and Technology, located on the Mall on Constitution Avenue between 12th and 14th Streets, N. W., in Washington, D. C., contains exhibits of many fine American contributions to the development of energy technology.

For example, the Hall of Nuclear Energy has the Columbia University cyclotron; a full-scale model of Enrico Fermi's first reactor; the first sample of the man-made element plutonium; and many animated demonstrations of historic experiments.

The Hall of Petroleum provides the visitor with some conception of the complex nature of the processes used to discover oil and prepare it for consumption. Exhibits in the

Hall of Petroleum deal with the history and technology of the oil industry within the continental United States, excluding Alaska. However, since American technology and, to a great extent, American equipment are used in most of the world's oil fields, such as Venezuela, Arabia, the Persian Gulf, or the North Sea, the equipment on display can also be considered typical of that used in the western world's petroleum industry.

Visitors entering the Hall of Petroleum from the main axis of the first floor view a panoramic mural of the oil industry, which was painted by Delbert L. Jackson, a staff illustrator for the Pan American Petroleum Corporation. This mural serves as a key to the contents of the hall. In front of the mural is a rotary drilling rig, originally used to drill water wells in Texas, and later used to drill shallow oil wells. An alternate entrance to the Hall of Petroleum from the Hall of Nuclear Energy brings the visitor to a detailed scale model of a modern rotary drilling rig. A series of ship models shows the growth of the oil tanker from the small *Glückauf* (the first vessel built expressly as an oil tanker) to modern giant tankers. At this point a detailed review of the petroleum industry's technology begins.

The arrangement of the Hall of Petroleum covers the following aspects of the oil industry:

1. The geology of the oil regions.
2. Exploring for oil.
3. The nature of oil and of the oil reservoir.
4. The methods of drilling and their development, including offshore drilling.
5. Completion and evaluation of an oil well.
6. Raising oil to the surface.
7. Stimulation of a well by artificial means.
8. Refining oil.

PETROLEUM HALL

Model of a modern rotary-drilling rig.

9. Natural gas and petrochemicals.
10. The distribution of oil products to the consumer.

For additional information, please contact:

Office of Public Affairs
Smithsonian Institution
Washington, D. C. 20560

Phone: (202) 381-5911

Model of the first commercial oil well.

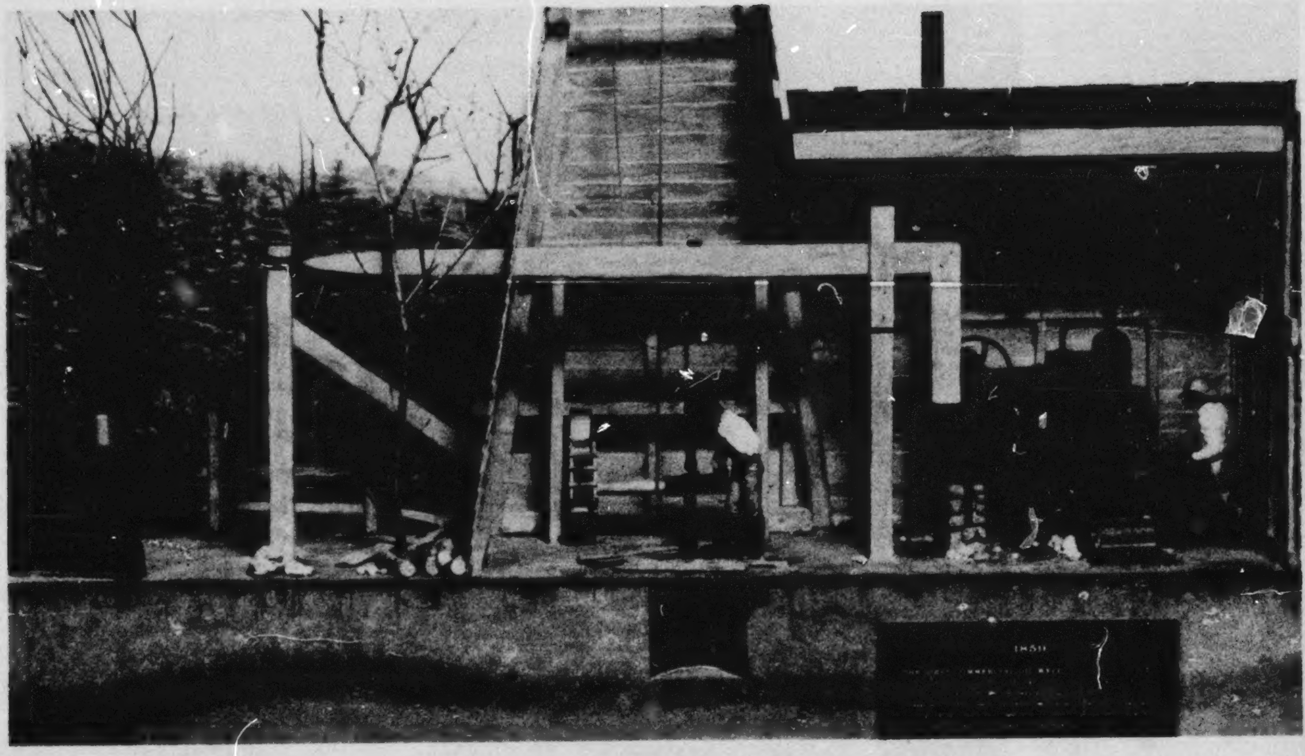

photo credits

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28	*Hall of Science of the City of New York*
32, 33, 34, 35, 38, 39, 40, & 41	*Power Authority of the State of New York*
44	*Rochester Gas and Electric Company*
49	*Power Authority of the State of New York*
53	*Lee Chapel Museum, Washington and Lee University*
57	*U. S. Department of the Interior, National Park Service, Edison National Historic Site*
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88	*Philadelphia Electric Company*
92	*The Peale Museum*
100 & 101	*The Smithsonian Institution*

about the author

Captain Joseph A. Angelo, Jr., received his Ph.D. and M.S. degrees from the University of Arizona. He was an astronautical engineer and nuclear research officer in the U. S. Air Force Space and Missile Systems Organization in California. He is now a staff research physicist at Patrick Air Force Base in Florida and is an adjunct faculty member of the Florida Institute of Technology. He has presented scientific papers in the fields of radioactive waste management and nuclear engineering education at professional conferences, which include the 1973 American Nuclear Society Winter Meeting in San Francisco, the March 1973 International Atomic Energy Agency Symposium in Paris, France, and the Waste Management 1974 Meeting in Tucson, Arizona.

A WORD ABOUT ERDA . . . .

The mission of the Energy Research & Development Administration (ERDA) is to develop all energy sources, to make the Nation basically self-sufficient in energy, and to protect public health and welfare and the environment. ERDA programs are carried out by contract and cooperation with industry, university communities, and other Government agencies. Its programs are divided into six major categories.

- CONSERVATION OF ENERGY—More efficient use of both existing and new sources of energy in industry, transportation, heating and cooling of buildings, and the generation of electricity, together with more efficient transmission of energy.
- FOSSIL ENERGY—Expansion of coal production and the development of technologies for converting coal to synthetic gas and liquid fuels, improvement of oil drilling methods, and development of techniques for converting shale deposits to usable oil.
- SOLAR, GEOTHERMAL, AND ADVANCED ENERGY SYSTEMS—Application of solar energy to heat and cool buildings and development of solar-electric power, conversion of underground heat sources for electricity and industrial heat, and development of hydrogen fusion for generating electricity.
- ENVIRONMENT AND SAFETY—Investigation of health, safety, and environmental effects of energy technologies, and research on managing wastes from energy production.
- NUCLEAR ENERGY—Expansion of medical, industrial and research applications; advancement of reactor technologies for generating electricity, especially the breeder concept; and production of nuclear materials for civilian needs.
- NATIONAL SECURITY—Development, production, and testing of nuclear weapons and attention to such related issues as safeguards and international security matters.

ERDA produces information publications to fulfill a statutory mandate to disseminate information to the public on all energy sources and energy conservation technologies. These materials are for public use and do not purport to present an exhaustive treatment of the subject matter. For a title list or information on a specific subject, please write to ERDA-Technical Information Center, P. O. Box 62, Oak Ridge, Tennessee 37830.

Energy Research and Development Administration
Office of Public Affairs
Washington, D. C. 20545

AMERICAN REVOLUTION BICENTENNIAL
1776-1976

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